Human Ecology Review

Winter 2001
Volume 8
Number 2

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Official Journal of the Society for Human Ecology

Human Ecology Review

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.

Human Ecology Review is indexed or abstracted in **Elsevier Biobase/Current Awareness in Biological Sciences, Environment Abstracts, Environmental Knowledgebase** (http://www.iasb.org), **Environmental Periodicals Bibliography (EPB), Linguistic and Language Behavior Abstracts, Social Planning and Policy Abstracts, Uncover, and Sociological Abstracts.**

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"Trees fighting for life," The Ming Tombs, Beijing, PRC, by *Adam Douglas Henry*

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Outport Adaptations: Social Indicators through Newfoundland's Cod Crisis

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Abstract

The 1992 moratorium on fishing for Northern Cod marked a symbolic end to the way of life that had sustained Newfoundland's outports for hundreds of years. It also marked the completion of an ecological regime shift, from an ocean ecosystem dominated by cod and other predatory groundfish, to one in which such fish are comparatively scarce, and lower-trophic-level invertebrates more common. We examine patterns of change seen in large-scale social indicators, which reflect the smaller-scale adaptations of individuals and communities during this ecological shift. Trends in population, migration, age, unemployment and dependency suggest declining conditions in rural Newfoundland over the years of fisheries troubles. The 1992 crisis accelerated previous trends, but did not produce great discontinuities. Some trends date instead to the late-1980s resource-depletion phase that ended the "glory years" of Newfoundland's groundfish boom. Government interventions meant to soften the economic impact of the 1992 crisis also blunted its social impacts, effectively postponing or distributing these over a number of subsequent years. Outport society is adapting to shifts in the regulatory and global-market environment, as well as changing marine ecology. Adaptive strategies include new investments in invertebrate fisheries, changes in education and migration, and continuing reliance on the informal economy.

Keywords: *Newfoundland, fisheries, social indicators, population, migration, cod crisis, dependency*

Introduction

The Northern Cod, an Atlantic cod (*Gadus morhua*) population inhabiting the continental shelf off Newfoundland's east and northeast coasts, historically has been among the world's richest fishery resources. This resource supported European settlement of North America (Innis 1978; Kurlansky 1997), and shaped society on the island of Newfoundland itself for five hundred years (Sider 1986; Sinclair 1988; Candow and Corbin 1997). During those centuries, fishing technology and effort increased slowly, having incremental and hard-to-perceive effects on the resource (Hutchings and Myers 1995). In the decades after World War II, however, technology and effort leaped forward. The Northern Cod came under new pressure from industrialized trawler fleets. Canada's 1976 declaration of a 200-mile economic exclusion zone (EEZ) sharply cut back fishing by foreign fleets, but Canadian domestic capacity soon built up to compensate. Signs of depletion were noticeable, but not yet officially acknowledged, in the late 1980s (Chantraine 1993; Finlayson 1994). By 1992, as Northern Cod biomass fell to one percent of its earlier level, a crisis was undeniable. Facing ecological collapse on a historically unprecedented scale, the government declared a moratorium on fishing for the Northern Cod.

It was soon apparent that this collapse involved more than the Northern Cod. Cod resources off Nova Scotia, New England, Greenland and in the Gulf of St. Lawrence also were dangerously depleted by the early 1990s (Boreman et al. 1997). Populations of other fish species — some valued by commercial fisheries, and others taken unintentionally as bycatch — fell in many areas as well (Hamilton, Duncan and Haedrich 2001). Northeastern Atlantic fisheries, including those of Iceland, Norway and the Faroe Islands, had experienced their own crises in groundfish resources during the late 1980s or early 1990s (Hannesson 1996; Hamilton and Haedrich 1999). In Newfoundland's case, however, the fall from abundance to commercial extinction was most profound. In the years since the Northern Cod moratorium, there has been little evidence of recovery (Lilly et al. 2000), and recovery appears unlikely at present levels of fishing (Haedrich and Hamilton 2000).

On land, the Northern Cod moratorium affected tens of thousands of Newfoundland workers, and undermined hundreds of coastal communities (Candow and Corbin 1997; Palmer and Sinclair 1997; Harris 1998). There were dire warnings about the social consequences, but government interventions softened these — initially, providing income assistance through the $484 million Northern Cod Adjust-

ment and Recovery Program (NCARP), followed in 1994 by The Atlantic Groundfish Strategy (TAGS) with an allocation of $1.9 billion. As TAGS expired in 1998, a further $730 million package was announced to assist with retraining and restructuring adjustments for workers displaced by the downsizing fishery. The benefits of TAGS and other supports, distributed unevenly among outport residents, created new inequalities and social divisions.

Although groundfish have not returned to their earlier abundance, alternative species have become the new mainstays of Newfoundland fishing. These alternatives — principally invertebrates such as crab and shrimp — currently yield catches comparable in value to the former cod fishery. Income from the alternative fisheries is distributed differently, however. It does not necessarily benefit the same people, enterprises or places that formerly were supported by cod.

In this paper, we examine some of the social changes occurring in Newfoundland through the Northern Cod moratorium. Comparisons of social indicators across five Newfoundland regions provide a large-scale perspective on this period, and show the crisis aftermath in the context of earlier trends. Finer-scale perspectives help to interpret these trends.

From Cod to Crustaceans

In 1991, 45% of Newfoundland's 568,000 people lived on the Avalon Peninsula, many of them around the capital city of St. John's (Figure 1). Away from St. John's, Newfoundland's population is dispersed among a handful of smaller regional centers, and hundreds of coastal towns or villages called outports. Most outports had been settled initially for cod fishing. Often they possessed few local resources besides cod, and were distant from population centers or markets. In the analyses that follow, we focus on the comparatively urban Avalon Peninsula and on four rural regions (Census divisions) that are Newfoundland's most fisheries dependent: the Northern Peninsula, Notre Dame Bay, South Coast and Burin Peninsula. In 1991, more than 20% of the Northern Peninsula's labor force worked in "fishing and trapping" (primarily fishing) industries. The Notre Dame Bay (12%), South Coast (10%) and Burin Peninsula (8%) regions also leaned heavily on fishing. In contrast, fishing comprised a smaller fraction (2%) of jobs on the Avalon Peninsula. Even the Avalon, however, contains rural areas and outports.

Figure 2 tracks changes in the landed value of fisheries products by type, in four rural regions over 1986-2000. Raw data were provided by the Newfoundland Region Department of Fisheries and Oceans (see Collins and Corbett 2000). For our analysis, we aggregated port-of-landing information into Census division units, and applied the consumer price index

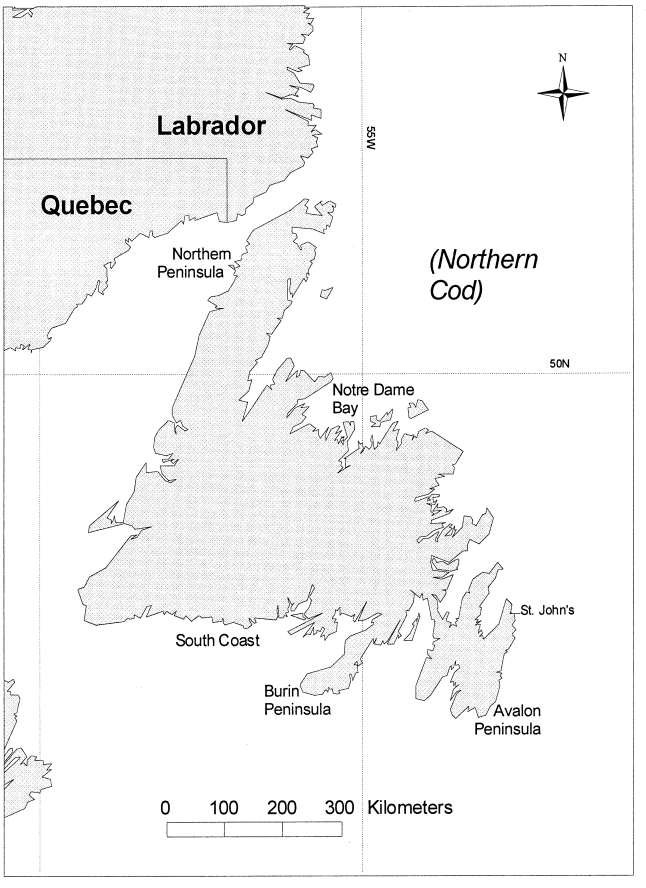

Figure 1. The island of Newfoundland, showing locations of the five regions compared, and the home of the Northern Cod.

to convert nominal values into approximately constant (2000) Canadian dollars. The vertical scale in Figure 2 extends from zero to $90 million. Figure 3 graphs similar data for the Avalon Peninsula; note that the vertical scale runs from zero to $240 million. Fishing activities based on the Avalon were larger in total value, although proportionately smaller in terms of employment.

Figures 2 and 3 depict fisheries responding to an ecological regime shift. Historically, groundfish species (especially cod) comprised most of the value. In these graphs, groundfish landings show general declines punctuated by sharp drops around 1992-94, as the Northern Cod and other key fisheries closed down. While groundfish declined, two crustacean species became much more important: snow crab (*Chionoecetes opilio*) and northern shrimp (*Pandalus borealis*). These and some other invertebrates grew more abundant as predatory groundfish disappeared (for one analysis of the cod-shrimp correlation, see Lilly, Parsons and Kulka 2000). At the same time that the ecological regime was shifting, there were also market changes (Apostle et al. 1998).

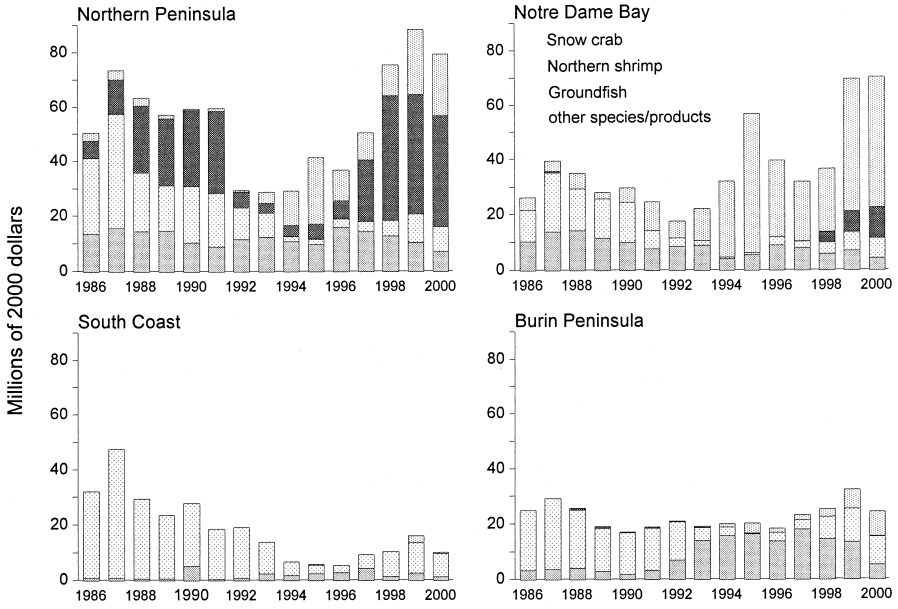

Figure 2. Adjusted value of landed catch by species type in the most fisheries-dependent Newfoundland regions, 1986-2000. Data source: Department of Fisheries and Oceans, Newfoundland.

Shrimp, crab and other invertebrates increasingly brought high prices on the new global markets. Together, the ecological and market shifts allowed Newfoundland's fishing industry to substitute invertebrates for the vanishing cod.

The cod-to-crustaceans transition appears to have been roughly an even exchange, for the economy of Newfoundland as a whole. At smaller scales, we see less even effects. Landings on the Northern Peninsula fell and then rose again, with booming shrimp harvests in the Gulf of St. Lawrence and Labrador Sea. Notre Dame Bay landings also increased, largely due to snow crab. But South Coast and Burin Peninsula fisheries, which in the 1980s had values similar to Notre Dame Bay, subsequently faced decline or stagnation. The Avalon Peninsula (Figure 3) showed comparatively steady and diverse expansion, based not only on crab and shrimp, but also groundfish - notably, turbot or Greenland halibut (*Reinhardtius hippoglossoides*).

Although Newfoundland's historical cod fishery changed slowly over centuries, the final outcomes after fifteen years of rapid change in Figures 2 and 3 should not be taken for a new stable state. Shrimp are relatively short-lived species, known for population fluctuations partly driven by ocean conditions (Parsons and Colbourne 2000). Their estimated biomass at this writing remains high, but the average size of individuals has decreased (Orr et al. 2001; DFO 2001a). This depresses the catch value, and raises uncertainty about the stock's future. Legal and trap-design limitations theoretically ought to keep most female snow crab from being caught, and thus protect that stock from overfishing. Nevertheless, after increasing for several years, the estimated biomass of snow crab — including mature females — fell sharply in 1999, and declined further in 2000 (DFO 2001b). Greenland halibut, one of the most important remaining groundfish stocks, have been the object of international incidents termed the "turbot wars" in Canadian press (Harris 1998). Like other slow-growing, long-lived deepwater fish, this species cannot support intensive exploitation (Koslow et al. 2000). A recent article described northwest Atlantic Greenland halibut stocks as "clearly in trouble and very likely on the verge of collapse"

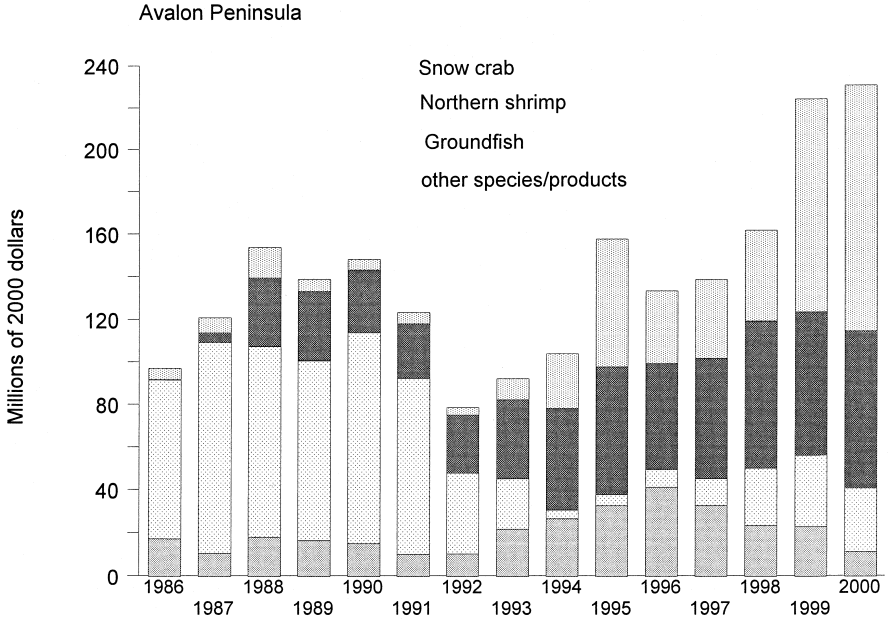

Figure 3. Adjusted value of landed catch by species type on the Avalon Peninsula, 1986-2000. Data source: Department of Fisheries and Oceans, Newfoundland.

(Haedrich, Merrett and O'Dea 2001, 118). DFO assessments are more optimistic, pointing to recent increases, but total biomass remains a fraction of its early-1980s value (Bowering 2000). We believe that ten years from now, if Figures 2 and 3 are redrawn with new data, they will reflect further ecological change.

One correlate of the cod-to-crustaceans transition in Figures 2 and 3 has been a growing inequality between regions, and between communities within regions. Capital investment, essential to the new fisheries, has been concentrated. Places with access to rich invertebrate resources, or with appropriate processing plants, had new geographical advantages. Figure 4 shows one measure of the inequality among Newfoundland's sixteen DFO-designated statistical areas. In 1986, the top 25% of these areas landed 42% of the total value; by the late 1990s this fraction was above 55%. It bears noting that the trend took off in the late 1980s, predating the official fisheries crisis — but not the ecological transformation that propelled it (Hamilton, Duncan and Haedrich 2001). We will see similar patterns in social-indicators trends.

Cod are a democratic fish, historically accessible near shore to almost anyone with a small boat. Shrimp, in contrast, tend to concentrate farther offshore, and require larger vessels with more power for trawling. These two species consequently have different socioeconomic implications. Snow crab, which recently surpassed shrimp as Newfoundland's most valuable landed product, also has a different profile than shrimp. Crab trapping requires less investment than shrimp trawling, and crab tends to support more processing jobs on land. In 1998, roughly 30% of the snow crab landings value (and none of the shrimp) was brought in by vessels of the smallest size class (Collins and Corbett 2000).

Although small boats cannot drag a shrimp net, other vessels frequently are equipped to pursue multiple species, including either crab or shrimp depending on market and resource conditions. Fishing regulations vary with vessel length, and there are restrictions against modifying any vessel to exceed its current size category. In general, vessels in the 35-44 foot class can be increased up to 44 feet 11 inches; and vessels in the 45-64 foot class up to 64 feet 11 inches. The upper limits of these size classes have seen all of the growth in Newfoundland's fishing fleet since 1988, while most other sizes declined (Collins and Corbett 2000). Many of the newer or recently modified vessels in Newfoundland harbors have an odd truncated appearance, unexpectedly wide and deep (also powerful) for their length. Such designs compress the maximum fishing capacity into a given length class. The (barely) under-65 foot vessels, though traditionally characterized as "nearshore" equipment, now often pursue resources on multi-day trips more than 200 miles at sea. Parsons (1998) notes that the under-65 foot class, which arose through regulations with "no apparent rationale," is below the optimal size for Labrador Sea or Grand Banks fishing in terms of crew comfort, safety or onboard processing (hence, value of landed products).

The multispecies fishing power, long range and compressed hull designs of these boats reflect recent adaptations to several environments: the ecological conditions underwater, including sparser and more distant resources; global markets, such as Japanese demand for invertebrates; and the constantly evolving regulatory environment on land. Investments to build Newfoundland's post-cod fishing fleet have come in part from large fish-processing concerns.

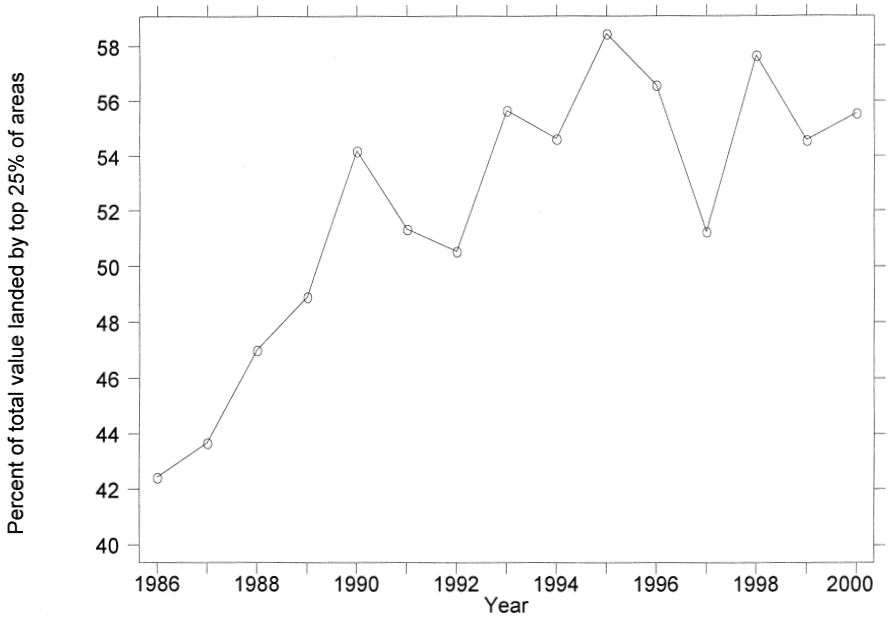

Figure 4. The percentage of total value landed by the top 25% (four of sixteen) Newfoundland fisheries statistical areas. Data source: Department of Fisheries and Oceans, Newfoundland.

Population

In Newfoundland, population change provides a rough measure of community well being. Figure 5 depicts population trends in the rural regions. Populations grew until the mid-1980s, with the groundfishing "glory years" that followed Canadian expansion into the 200-mile EEZ (see Palmer and Sinclair 1997). Populations subsequently declined

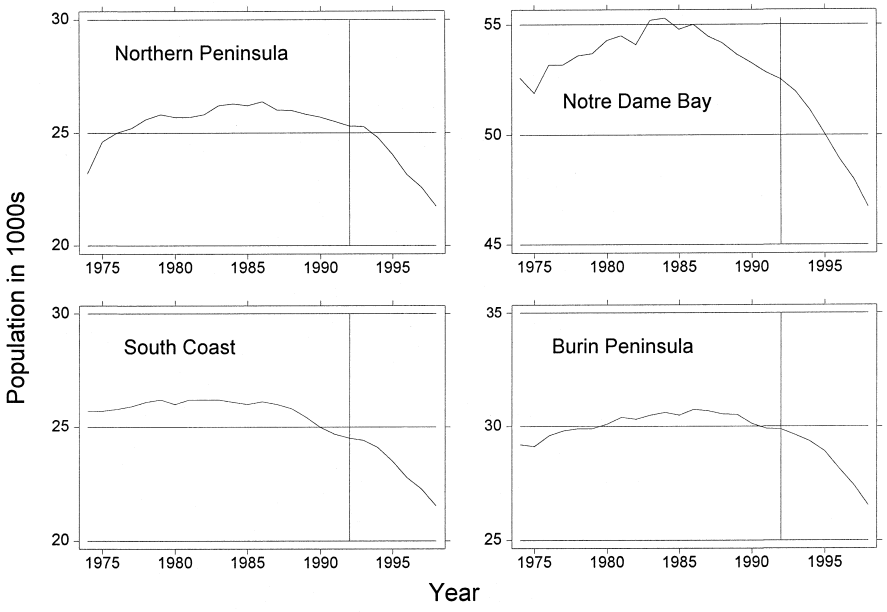

Figure 5. Populations of the most fisheries-dependent regions, 1974-98. Note changing vertical scales. Vertical lines mark the 1992 Northern Cod moratorium. Data source: Newfoundland Statistics Agency.

across all four regions, as resource depletion set in. From 1986 to 1998, the Northern Peninsula and South Coast regions both lost 18% of their populations. The Burin Peninsula fell by 14%, and Notre Dame Bay by 13%.

Figure 6 graphs population on the Avalon Peninsula. Whereas rural populations had been declining since the mid-1980s, along with groundfish, Avalon continued to grow until collapse was officially recognized in 1992. Some of this growth reflected in-migration from rural regions. In comparison to the outports, the St. John's area on Avalon offers a wide range of employment and educational opportunities. However, following the crisis, Avalon population fell too, so that by 1998 it had again reached its 1986 level.

Figure 7 shows trends in net migration 1987-97, a period that coincides with the end of the "glory years," and the subsequent era of crisis. Except for the early 90s on Avalon, net migration was predominantly negative for all of these places and years. Outmigration has long been typical of rural Newfoundland, but in the past this was offset by high birthrates. Due to modernization of women's roles, Newfoundland's historically high birthrates have been declining, to a point where they no longer compensate for migration. The Northern Cod moratorium of 1992 was followed by increasing outmigration from Notre Dame Bay and the Avalon and Burin Peninsulas. On the Northern Peninsula and South Coast, however, migration downturns did not begin until a year or two later, when Northern Gulf of St. Lawrence cod also came under a moratorium (1993-94).

Outmigration is a selective phenomenon that alters the demographics of source communities. Limited job and educational opportunities, combined with the turmoil in fisheries, made outport life less attractive to young adults. From 1986 to 1996, Canada experienced a 7.3% increase in the number of males aged 20-44, while Northern Peninsula (- 11.4%), South Coast (-9.4%), Notre Dame Bay (- 8%) and Burin (- 5.5%) all experienced declines. A similar picture emerges for women between the ages of 20-44: Canada experienced an 8.8% increase from 1986-1996, but we see a net loss of young women on the Northern Peninsula (- 9.9%), South Coast (- 9.0%), Notre Dame Bay (- 7.3%) and Burin (- 5.3%). The

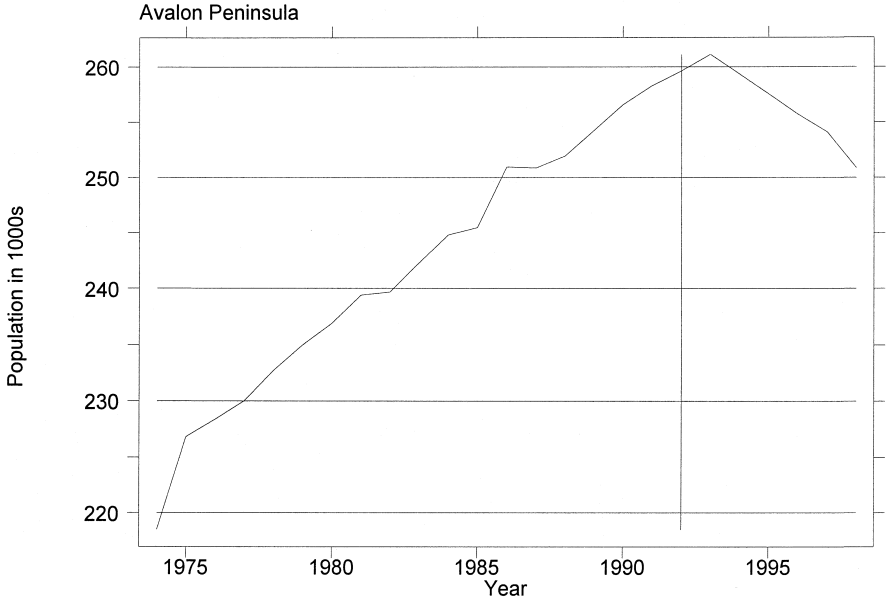

Figure 6. Population of the Avalon Peninsula, 1974-98. Data source: Newfoundland Statistics Agency.

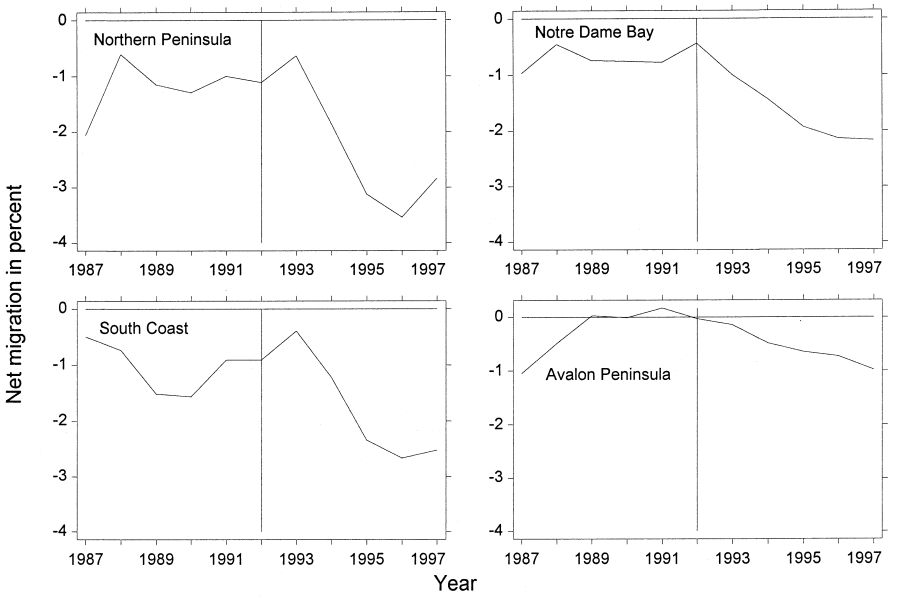

Figure 7. Net migration rates 1987-97. Data Source: Newfoundland Statistics Agency.

Avalon Peninsula, which exported some people but also received migrants from the outports, showed no net change in young men, and a 3.3% gain in young women, during this decade.

As the population of young people in a region decreases, the proportion of elders increases. In Canada, the fraction of the population over the age of 65 grew by 14% between 1986 and 1996 (from 10.7% to 12.2%), but in rural Newfoundland this segment's relative size grew much faster. The proportion of individuals over 65 increased at double the national rate on the South Coast (from 7.6% to 10.4% over 1986-1996) and Northern Peninsula (from 7.2% to 10.2%). As they grew proportionately older, outport communities were left with less of the human capital that could be critical for their economic and social futures. At present, however, they still remain younger than Canada as a whole.

A more detailed analysis of migration statistics, using the Community Accounts database of the Newfoundland Statistics Agency, reveals behavioral changes that underlie the demographic changes. The group most prone to leave rural Newfoundland over 1991-96 consisted of 15 to 19 year olds. However, the Avalon Peninsula during the same period experienced a net gain of such people. Avalon outmigrants were more often from the 20-24 year old group, or older. Whereas traditional outport youth might have seen little need for education, and often dropped out before completing high school, in modern times — especially since the fisheries crisis — the value of schooling has become more apparent. Increasing proportions of outport youth, with new encouragement from families, government and outport realities, have opted for post-secondary education. St. John's, home of Newfoundland's only university, gained from this migration stream. After college or training, however, many of the young adults continued moving out of Newfoundland. Such behavior helps to explain both the older profile of Avalon outmigrants, and the delay between rural and Avalon population downturns seen in Figures 5-6.

Examining survey results in which most Northern Peninsula youth express intentions to move away, Sinclair (2001, 44) concludes:

> *As outmigration proceeds, and assuming the birth rate remains low, declining population will challenge the capacity of the province to provide services to those who remain ... At this time, the people of the Great Northern Peninsula face a challenge as great as any in their history.*

Employment

Population shifts reflect and reinforce changes in employment prospects. Table 1 draws on data from the 1986, 1991 and 1996 censuses to compare employment patterns before, during and after the cod crisis. Canada's unemployment rate fell slightly, from 9% in 1991 to 8.6% in 1996. Rural Newfoundland's base rates stood around four times this national level (34-37%) by 1996, though they had actually declined on Notre Dame Bay. Even as many people left rural regions to seek jobs, an increasing proportion of those left behind appeared jobless.

There are notable contrasts between male and female unemployment trends. Although male unemployment declined for Canada and Avalon over 1991-96, it increased on Burin, the South Coast and the Northern Peninsula. However, while male unemployment rose in these rural regions, female unemployment decreased everywhere except Burin; there it increased at a much slower rate (an 8.7% increase for females as opposed to a 49.6% increase for males). These findings might partly reflect the tertiary-sector (non-fishery) occupations of many women, and their movement into the work force as male employment declined.

Higher male unemployment reflects hard times in the fishing industry. Among all Canadians, the percentage of

Table 1. Changes in employment and sources of income, from the 1986, 1991 and 1996 censuses. Data Source: Statistics Canada.

Variable	Region	1986	1991	1996	% change 1991-96
% Unemployed	Canada	8.5	9.0	8.6	-4.4
	Avalon	17.5	19.9	16.9	-15.1
	Burin	20.5	25.7	33.8	31.5
	South Coast	22.9	30.6	33.7	10.1
	N. Peninsula	29.4	36.1	36.8	1.9
	Notre Dame	32.6	41.5	34.6	-19.9
% Males Unemployed	Canada	—	8.9	8.7	-2.2
	Avalon	—	20.3	18.2	-10.3
	Burin	—	24.0	35.9	49.6
	South Coast	—	27.3	33.6	23.1
	N. Peninsula	—	34.7	36.8	6.1
	Notre Dame	—	44.3	39.0	-13.6
% Females Unemployed	Canada	—	9.2	8.5	-7.6
	Avalon	—	19.4	15.5	-20.1
	Burin	—	28.6	31.1	8.7
	South Coast	—	35.8	33.9	-5.3
	N. Peninsula	—	37.7	36.8	-2.4
	Notre Dame	—	37.5	28.2	-33.0
% income from employment	Canada	78.7	77.8	75.3	-3.2
	Avalon	75.8	75.1	71.3	-5.1
	Burin	71.4	69.7	60.2	-13.6
	South Coast	70.2	68.5	56.2	-18.0
	Notre Dame	61.2	61.1	55.8	-9.5
	N. Peninsula	66.1	63.0	56.0	-11.1
% income from government transfer	Canada	11.1	11.4	14.0	22.8
	Avalon	17.4	17.5	20.2	15.4
	Burin	26.0	26.3	34.6	31.6
	South Coast	26.7	27.2	37.9	39.3
	N. Peninsula	32.2	33.9	39.4	16.2
	Notre Dame	35.8	35.0	38.4	8.9

income coming from employment declined 3.2% during 1986-96 (from 78.7% to 75.3%). On Avalon, the percentage of income from employment fell by 4.5% (75.8% to 71.3%). More dramatic falls occurred on the South Coast (14%), Burin (11.2%), Northern Peninsula (10.1%) and Notre Dame Bay (9.5%), with the largest declines happening over 1991-96. By 1996, only 56% of all income in the three most fisheries-dependent regions (South Coast, Notre Dame and Northern Peninsula) came from employment.

Government subsidies sought to offset the loss of jobs due to the fisheries troubles. In Canada as a whole, some 14% of all income came from the government in 1996. This compares with 20% on Avalon, and 35-40% in the rural regions. The percentage of reported income from government transfers on Burin rose from 26.3% to 34.6%, a 31.6% increase in only five years. The South Coast experienced the most dramatic increase in government transfers from 1991 to 1996 (from 27.2% to 37.9%). Notre Dame and the Northern Peninsula had even higher levels of dependence on transfer payments.

In a U.S. or urban Canada context, such high levels of unemployment and dependency would paint a picture of miserable poverty. Newfoundland outports do not necessarily conform to this picture, however. Instead, some small places that have lost hundreds of jobs nevertheless give a hopeful impression, with neat yards, painted houses and a fair number of new cars. The apparent discrepancy underlines a need for caution in interpreting unemployment statistics. Reliance on Canada's unemployment insurance (UI) program has long been very high in Newfoundland outports. Analysis of Statistics Canada data by the Newfoundland Statistics Agency in the early 1990s found that in 45% of Newfoundland communities, *all* of the workforce accepted unemployment insurance at some time. UI has been part of the fabric of modern outport life, with many people seeking work for the minimal 11-week periods required to qualify for benefits. Since much outport employment is temporary or seasonal, the "unemployment rate" can vary substantially from week to week. Moreover, the loss of fishing or fish-processing jobs might be offset economically so long as there exist any other ways to qualify for UI. The TAGS program further complicates interpretation of unemployment statistics in the 1996 census. Jobless TAGS recipients could have been counted either as "unemployed" or "not in the labor force," depending on their own (or Census interviewers') perceptions.

Rural Newfoundland hosts a strong informal economy (Felt and Sinclair 1992), which also contributes to outport adaptations. This informal economy includes the use of country foods such as moose meat or fish, or local firewood cut for heating. It also includes barter or cash-based exchanges of goods and services such as home-building and vehicle maintenance. A 1986 study (House, Hanrahan, and Simms 1986, 146) gave the following estimates of personal income by source, for full and part-time fishermen.

	Full-time	Part-time
fishing	40%	20%
other employment	4%	13%
transfer payments	24%	25%
household production	32%	42%

"Household production" refers to the replacement value of shelter, fuel, repairs and food obtained directly through household labor.

Employment for cash, unreported meat, fish or timber sales, and other informal-economy income further contributes to outport standards of living without casting much shadow in official statistics. The total magnitude of informal-economy activities is unknown, but it appears capable of providing a buffer against the troubles of the formal economy.

Table 2. Human capital changes: Education statistics from the 1986, 1991 and 1996 censuses. Data Source: Statistics Canada.

Variable	Region	1986	1991	1996	% change 1991-96
% population >	Canada	17.3	13.9	12.1	-12.9
15 years, w/o grade 9	Avalon	19.8	14.6	12.1	-17.1
	Burin	33.9	27.5	23.0	-16.4
	South Coast	43.2	35.7	31.6	-11.5
	N. Peninsula	38.6	32.5	27.9	-14.2
	Notre Dame	38.6	31.3	27.9	-10.9
% population >	Canada	9.6	11.4	13.3	16.7
15 years, with college	Avalon	8.1	9.3	11.3	21.5
	Burin	3.1	3.9	4.5	15.4
	South Coast	3.1	3.4	3.8	11.8
	N. Peninsula	2.9	3.6	4.9	36.1
	Notre Dame	2.7	3.3	4.0	21.2

Education

Table 2 depicts changes in education over the course of the groundfish collapse. Overall, we see that the people remaining in the region tended to stay in school longer, and were more likely to have earned a college degree, in 1996 than in 1986. The percentage of individuals over 15 years old but without a ninth-grade education decreased in all regions. Even so, the percentage of individuals with low education in 1996 remained well over twice the national level on the South Coast (31.6%), Northern Peninsula and Notre Dame Bay (both 27.9%).

Although rural residents tended to stay in school longer in 1996 than in 1986, the prevalence of university degrees remained far below national levels. The percentage of university graduates increased in Canada from 9.6% in 1986 to 13.3% in 1996, and showed similar trends on Avalon (from 8.1% to 11.3%). The proportions of college graduates grew in all four rural Newfoundland regions too, but in 1996 they were still less than half of the national level.

A more educated population could improve prospects for economic diversification in the outports. Upward trends notwithstanding, outport human capital levels are low. For college graduates, the employment opportunities in outports cannot generally compete with those in cities. This reality motivates continuing outmigration of young people seeking education and white-collar jobs. Although adaptive for individuals and probably for their extended families, outmigration limits the human resources that might support community development beyond fishing.

Crime

Through this period of economic instability and increased unemployment, there was no general increase in crime. On the contrary, crime rates (Figure 8) declined in four of the five study regions over 1991-96. The total number of crimes reported per 1,000 people dropped 42% on the Northern Peninsula (75.8 to 44.3), 24% on Burin (89.9 to 68.4), 23% on Notre Dame Bay (53.9 to 41.3), and 20% on the Avalon Peninsula (from 104 to 83.2). South Coast crime rates rose during 1994-95, but subsequently returned to a point below their 1991 level.

Taken separately, property crime rates (not shown) declined in all these regions over 1991-96: by 38% on the Northern Peninsula (16.9 to 10.4 per 1,000), 35% on Burin (28 to 18.3), 27% on the South Coast (17.8 to 12.9, but with a spike at 25.1 in 1995), 24% on Notre Dame Bay (15.3 to 11.7) and 17% on Avalon (42.9 to 35.4). Violent crime rates, on the other hand, peaked in years following the cod crises on Avalon (1992), Notre Dame (1993-94), Burin (1992-94), and the South Coast (1993-95). By 1996, however, Avalon and Notre Dame violent crime rates had fallen below their 1991 level; and the rates of Burin and the South Coast were near

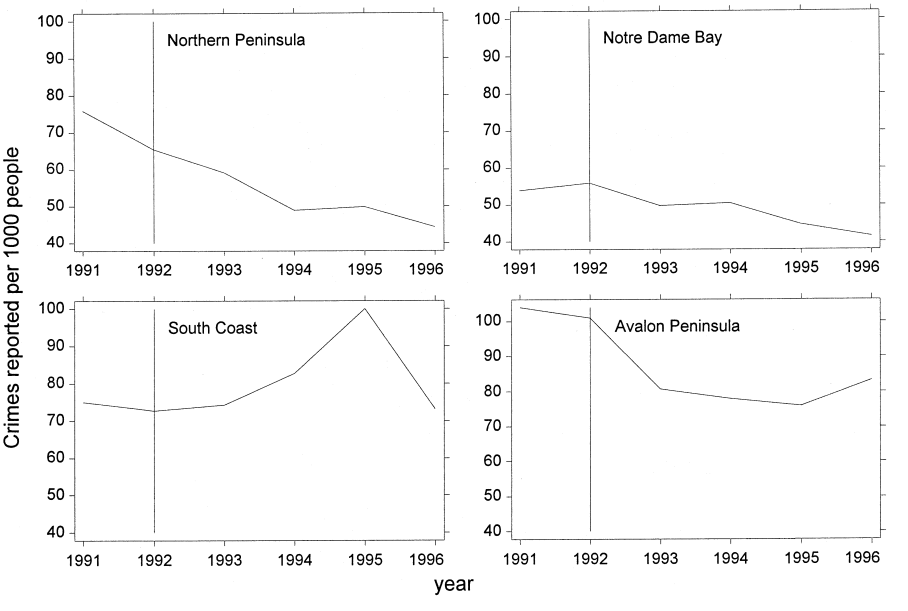

Figure 8. Total crimes reported per 1,000 people, 1991-96. Data source: Newfoundland Statistics Agency.

their 1991 levels (around 7 and 8 violent crimes per 1,000, respectively). Northern Peninsula data show a steady decrease in violent crime during this period. Although the temporary rise of violent crimes in four areas deserves closer scrutiny, we otherwise see no indication that the fisheries crisis brought a broad increase in delinquency. Disproportionate outmigration by teenagers and young adults might have contributed to the actual declines seen.

It is worth emphasizing that on the Northern Peninsula, Notre Dame Bay and Burin Peninsula, crime rates throughout this period remained comparatively low. Like some outports' cared-for appearance, the low crime rates of rural Newfoundland suggest that social integration often remained effective despite economic stress.

Conclusion

Sociologists have examined the problems of boom-bust cycles, lagging human and social capital, dependency and underdevelopment in natural resource dependent communities or NRDCs (e.g. Bunker 1989; Freudenburg 1992; Freudenburg and Gramling 1994; Humphrey 1995; Johnson and Stallman 1994; Rural Sociological Society Task Force on Persistent Rural Poverty 1993). Some generalizations about NRDCs can be offered on the basis of forestry, mining and energy-community studies (following Freudenburg and Gramling 1994; Humphrey 1995):

- Many NRDCs experience persistent, long-term poverty. Resource extraction industries did not link to other industries to produce more diversified economic growth, nor did most of their workers invest in human capital sufficient to support adaptation to other industries or locations.
- There has been a long-term downward trend in employment, due to shifts from labor-intensive to capital-intensive extraction and processing, global competition among resource providers, and "dematerialization of manufactured goods in advanced industrial countries" (Humphrey 1995, 94).
- Resource-extraction industries' backward and forward linkages (e.g., manufacturing resource-extraction equipment; processing raw materials into finished products) often take place outside the NRDCs themselves. This limits the local benefits derived from their natural-resource industries.
- Even in NRDCs, workers increasingly need advanced training and technological skills that are unavailable in their remote locations. The skills mismatch and "institutional mismatch" further hinder local development and lead to regional centralization.

These generalizations apply well to rural Newfoundland, which suggests that its troubles have at least partly structural causes not tied to fishing per se. On the other hand, the timing of changes seen in Figures 5-8 and Tables 1-2 support inferences that fisheries-specific events — the late-1980s decline and the early-90s crisis in groundfish resources — had social impacts as well. Subjective evidence for ecological effects can be found among the first-person accounts of fisher folk (e.g., Hamilton and Duncan 2000). Similar patterns of demographic change following fisheries events have been observed in other fisheries-dependent regions of the northern Atlantic (Hamilton and Otterstad 1998; Hamilton and Haedrich 1999).

Social changes since Newfoundland's cod crisis show adaptations to multiple environments: not only shifting marine ecosystems, but also the global economy and fisheries regulations. Some adaptations follow traditional outport patterns — intensification and increasing range in the fisheries, reliance on the informal economy and transfer payments, and borrowing from fish processors. Although once again rich, today's fisheries are more concentrated, requiring more capital and less labor than their predecessors. The changes make fisheries less broadly supportive of outport society as a whole. Declining population due to reduced family size and increased outmigration, especially among young people with education and skills, is one unsurprising though unfortunate result.

Economic diversification efforts, including tourism and offshore energy development, have made visible impacts on some ports. These provide a prominent source of hope for the future. Expanding rural Newfoundland economies to the point where they could support present populations remains a formidable challenge, however (House 1999). At least equally formidable is the challenge of operating Newfoundland's currently booming invertebrate fisheries in a sustainable way. Despite fishing's narrowing role, a decade after the cod crisis it remains the foundation of outport life.

Endnote

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Acknowledgments

Cliff Brown, Cynthia M. Duncan and Richard Haedrich contributed to the research underlying this paper. We are grateful for comments and assistance with data from Alton Hollett at the Newfoundland Statistics Agency, and from Frank Corbett at the Newfoundland Region Department of Fisheries and Oceans. Discussions with Sean Cadigan, Earl Dawe, George Lilly, David Orr, Peter Sinclair and Michael Wernerheim, as well as suggestions by anonymous reviewers, helped to strengthen the final draft. The North Atlantic Arc (NAArc) project has been supported by grants from the Arctic System Science and Arctic Social Sciences programs of the U. S. National Science Foundation.

References

Apostle, R., G. Barrett, P. Holm, S. Jentoft, L. Mazany, B. McCay and K. Mikalsen. 1998. *Community, States, and Market on the North Atlantic Rim: Challenges to Modernity in the Fisheries*. Toronto: University of Toronto Press.

Boreman, J., B. S. Nakashima, J. A. Wilson and R. L. Kendall (eds.). 1997. *Northwest Atlantic Groundfish: Perspectives on a Fishery Collapse.* American Fisheries Society.

Bowering, W. R. 2000. Trends in distribution, biomass and abundance of Greenland halibut (*Reinhardtius hippoglossoides*) in NAFO subarea 2 and divisions 3KLMNO from Canadian research vessel surveys during 1978-99. NAFO Scientific Council Reports document 00/12.

Bunker, S. G. 1989. Staples, links and poles in the construction of regional development theories. *Sociological Forum* 4, 589-610.

Candow, J. E. and C. Corbin (eds.). 1997. *How Deep is the Ocean? Historical Essays on Canada's Atlantic Fishery.* Sydney, Nova Scotia: University College of Cape Breton Press.

Chantraine, P. 1993. *The Last Cod Fish: Life and Death of the Newfoundland Way of Life*. St. John's: Jesperson.

Collins, J. and F. Corbett. 2000. Newfoundland region catches, landed value and vessel size: Some trends and issues (unpublished report). St. John's: Policy and Economics Branch, Newfoundland Region Fisheries and Oceans Canada.

Department of Fisheries and Oceans. 2001a. Northern shrimp (*Pandalus borealis*) - Div. 0B to 3K stock status update. Ottawa: Department of Fisheries and Oceans Canada.

Department of Fisheries and Oceans. 2001b. Newfoundland and Labrador snow crab stock status update. Ottawa: Department of Fisheries and Oceans Canada.

Felt, L. F. and P. R. Sinclair. 1992. "Everyone does it": Unpaid work in a rural peripheral region. *Work, Employment & Society* 6 (1), 43-64.

Finlayson, A. C. 1994. *Fishing for Truth: A Sociological Analysis of Northern Cod Stock Assessments from 1977-1990*. St. John's: Institute for Social and Economic Research.

Freudenburg, W. R. 1992. Addictive economies: Extractive industries and vulnerable localities in a changing world economy. *Rural Sociology* 57, 305-332.

Freudenburg, W. R. and R. Gramling. 1994. Natural resources and poverty: A closer look. *Society and Natural Resources* 7, 5-22.

Haedrich, R. L. and L. C. Hamilton. 2000. The fall and future of Newfoundland's cod fishery. *Society and Natural Resources* 13, 359-372.

Haedrich, R. L., N. R. Merrett and N. R. O'Dea. 2001. Can ecological knowledge catch up with deep-water fishing? A North Atlantic perspective. *Fisheries Research* 51, 113-122.

Hamilton, L. C. and C. M. Duncan. 2000. Fisheries dependence and social change in the Northern Atlantic. In D. Symes (ed.) *Fisheries Dependent Regions*, 95-105. Oxford: Fishing News Books.

Hamilton, L. C., C. M. Duncan and R. L. Haedrich. 2001. Above and below the water: Social/ecological transformation in northwest Newfoundland. Durham, NH: NAArc Working Paper 01-2.

Hamilton, L. C. and R. L. Haedrich. 1999. Ecological and population changes in fishing communities of the North Atlantic Arc. *Polar Research* 18 (2), 383-388.

Hamilton, L. C. and O. Otterstad. 1998. Demographic change and fisheries dependence in the northern Atlantic. *Human Ecology Review* 5 (1), 24-30.

Hannesson, R. 1996. *Fisheries Mismanagement: The Case of the North Atlantic Cod*. Oxford: Fishing News Books.

Harris, M. 1998. *Lament for an Ocean: The Collapse of the Atlantic Cod Fishery*. Toronto: McClelland and Stewart.

House, J. D., M. Hanrahan and D. Simms. 1986. Background Report: Fisheries Policies and Community Development. Proposal for a Revised Approach to Managing the Inshore Fisheries in Newfoundland. Ottawa: Royal Commission on Employment and Unemployment.

House, J. D. 1999. *Against the Tide: Battling for Economic Renewal in Newfoundland and Labrador*. Toronto: University of Toronto Press.

Humphrey, C. R. 1995. Introduction: Natural resource-dependent communities and persistent rural poverty in the U.S.-Part IV. *Society and Natural Resources* 8 (2), 93-96.

Hutchings, J. A. and R. A. Myers. 1995. The biological collapse of Atlantic cod off Newfoundland and Labrador: An exploration of historical changes in exploitation, harvesting technology, and management. In R. Arnason, and L. F. Felt (eds.), *The North Atlantic Fishery: Strengths, Weaknesses, and Challenges*, 37-93. Charlottetown, PEI: Institute of Island Studies.

Innis, H. A. 1978 (1954). *The Cod Fisheries: The History of an International Economy*. Toronto: University of Toronto Press.

Johnson, T. G. and J. I. Stallman. 1994. Human capital investment in resource-dominated economies. *Society and Natural Resources* 7, 221-233.

Koslow, J. A., G. W. Boehlert, J. D. M. Gordon, R. L. Haedrich, P. Lorance and N. Parin. 2000. Continental slope and deep-sea fisheries: Implications for a fragile ecosystem. *ICES Journal of Marine Science* 57, 548-557.

Kurlansky, M. 1997. *Cod. A Biography of the Fish That Changed the World*. Toronto: Alfred A. Knopf.

Lilly, G. R., D. G. Parsons and D. W. Kulka. 2000. Was the increase in shrimp biomass on the Northeast Newfoundland shelf a consequence of a release in predation pressure from cod? *Journal of Northwest Atlantic Fisheries Science* 27, 45-61.

Lilly, G. R., P.A. Shelton, J. Brattey, N. G. Cadigan, E. F. Murphy and D. E. Stansbury. 2000. An assessment of the cod stock in NAFO divisions 2J + 3KL. NAFO Scientific Council Reports document 00/33.

Orr, D., D. G. Parsons, P. J. Veitch and D. J. Sullivan. 2001. Northern shrimp (Pandalus borealis) off Baffin Island, Labrador and northeaster Newfoundland — first interim review. Research Document 2001/043, Department of Fisheries and Oceans Canada.

Palmer, C. T, and P. R. Sinclair. 2000. Expecting to leave: Attitudes to migration among high school students on the Great Northern Peninsula of Newfoundland. *Newfoundland Studies* 16 (1) , 30-46.

Palmer, C. T, and P. R. Sinclair. 1997. *When the Fish Are Gone: Ecological Disaster and Fishers in Northwest Newfoundland*. Halifax, NS: Fernwood Publishing.

Parsons, C. 1998. *Fishing Vessel Replacement Regulations in the Newfoundland Fishery: Implications for the Future* (Master's Thesis). St. John's: Memorial University of Newfoundland.

Parsons, D. G. and E. B. Colbourne. 2000. Forecasting fishery performance for northern shrimp (Pandalus borealis) on the Labrador Shelf (NAFO Divisions 2HJ). *Journal of Northwest Atlantic Fisheries Science* 27, 11-20.

Rural Sociological Society Task Force on Persistent Rural Poverty. 1993. *Persistent Poverty in Rural America.* Boulder: Westview Press.

Sider, G. M. 1986. *Culture and class in anthropology and history: A Newfoundland Illustration*. Cambridge: Cambridge University Press.

Sinclair, P. R. 1985. *From Traps to Draggers: Domestic Commodity Production in Northwest Newfoundland, 1850-1982*. St. John's, Newfoundland: ISER.

Sinclair, P. R. (ed.). 1988. *A Question of Survival: The Fisheries and Newfoundland Society*. St. John's, Newfoundland: ISER.

Sinclair, P. R. 2001. Expecting to leave: Attitudes to migration among high school students on the Great Northern Peninsula of Newfoundland. *Newfoundland Studies.*

State-of-the-art shellfish fleet based at the village of Port de Grave, Avalon Peninsula (May 2001).

New fishing vessels, rigged for both crab pot hauling and shrimp dragging, at the new small boat Service Center in St. John's (May 2001).

Deep-sea trawler base and major fish processing plant at Trepassey, Avalon Peninsula — formerly the town's main employer (over 1,000 jobs), but now inactive (May 2001).

Toward an Ecology of Social Action: Merging the Ecological and Constructivist Traditions

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Abstract

In this article, I trace organizational sociology's inability to develop a comprehensive framework integrating structure, agency and environment to the persistence of essentialism within the ecological tradition and nominalism within the constructivist tradition. Drawing on parallels with the Darwinian revolution, I argue that these impasses can be overcome through a combination of population thinking and a relational approach to categorization. This combination provides the metatheoretical foundation for an "ecology of social action" which merges organizational ecology and resource mobilization theory's insights into structure-environment interactions with constructivists' attention to agency, language, culture and power. The concept of a socially constructed adaptive landscape is put forward as a central metaphor for linking the ecological and constructivist traditions.

Keywords: *organizational ecology, constructivism, agency, essentialism, nominalism*

Introduction

An inability to capture the dialectic between structure, agency and environment has plagued organizational sociology from its inception. Reed (1988, 42) argues that this problem can only be resolved within an historical framework that focuses "on those social practices through which social structures are created, maintained and transformed over time." At first glance, organizational ecology's evolutionary account of social change seems ideally suited to this task. However, organizational ecology has not only failed to provide the needed synthesis. If anything, it has driven the rhetorical wedge between structure and agency and macro and micro perspectives even deeper.

In order to set their new paradigm apart from so-called "adaptationist" theories, Hannan and Freeman (1977) premised organizational ecology on the assumption that organizations are largely inert relative to the speed of environmental change. While the inertia metaphor initially served as an effective counterpoise to managerial theorists' nearly exclusive reliance on rational choice to account for organizational change, the limitations of this metaphor have now become apparent. As critics point out, organizational ecologists have simply constructed an inverted image of managerial omnipotence — a theoretical framework in which individual and corporate *actors* are incapable of significantly modifying themselves or their environments (Fombrun 1988; Meyer 1990; Winter 1990; Zucker 1989).

In contrast, constructivist theorists (e.g., Snow et al. 1986) have succeeded precisely where organizational ecologists have fallen short. By focusing on the rhetorical and claims-making activities of individual and corporate actors, constructivists have exposed the historical and contested character of intra- and inter-organizational relations and demonstrated that actors, and the alternative meanings they espouse, can play an independent causal role in history. However, although they have made significant advances in integrating agency and culture into organizational analysis, constructivists have thus far failed to connect their insights to a broader theory of organizational dynamics (Musolf 1992).

The complementary strengths and limitations of the ecological and constructivist traditions suggest the need for a synthesis. However, achieving such a synthesis requires placing these traditions within a broader theoretical and philosophical context. Drawing upon parallels with the Darwinian revolution, I argue that the primary obstacle to merging these perspectives is the persistence of essentialism within the ecological tradition and nominalism within the constructivist tradition. Moreover, the key to overcoming these impasses is to combine population thinking with a relational approach to categorization. This combination provides the metatheoretical foundation for an "ecology of social action" which integrates organizational ecology and resource mobilization theory's insights into structure-environment interactions with constructivists' attention to agency, language, culture and power. The concept of a socially constructed adaptive landscape is put forward as a central metaphor for linking the ecological and constructivist tradi-

tions. In the final section of the paper, I discuss the implications of this revised version of organizational ecology for the study of the origins, legitimation and diversification of organizational forms.

From Frame-Invariant to Frame-Relative Thinking

The Essentialist Roots of Western Science

The inability of social theorists to come to grips with the interrelationships between structure, agency and environment can best be understood in terms of the legacy of essentialism in the social sciences and the divergent reactions engendered by that legacy. Essentialist theorists from Tylor, Morgan, Marx, Durkheim and Spencer to twentieth-century advocates of "functionalism" and "evolutionism" all share a commitment to Aristotle's Natural State Model (NSM). In his Physics, Aristotle writes:

> *...natural things are exactly those which do move continuously, in virtue of a principle inherent in themselves, towards a determined goal; and the final development which results from any one such principle is not identical for any two species, nor yet is it any random result; but in each there is always a tendency towards an identical result if nothing interferes with the process.*
>
> (as quoted in Bock 1978, 43)

Whether applied to physics, biology or politics, Aristotle's approach to theory construction involves: (1) defining a class of objects so that each and every member of that class and only members of that class possess certain "essential" characteristics, (2) defining the "natural" state or path of change characteristic of members of that class and (3) distinguishing these internally generated "natural" tendencies from "deviations" caused by external "obstacles" or "interfering forces." Aristotle's model represents a *frame-invariant* approach to theory construction because its goal is to analytically strip away the effects of external forces in order to uncover context-independent universal patterns (Sober 1980).

Early chemists' formulation of the periodic table and Newton's "laws of motion" were both products of successful essentialist research programs (Sober 1980). They were successful because researchers in these fields were able to theorize "interfering forces" — e.g., the effects of friction on falling bodies — to systematically account for observed "deviations." Such successes clearly undermine any attempt to construct a global anti-essentialist argument (e.g., Popper 1972). They likewise undercut Bock's (1956) contention that the NSM does not allow for a "science" of the "accidental." These points are crucial for understanding the strengths and limitations of this doctrine because they belie the common charges that essentialism is inherently ahistorical, deterministic or non-scientific. *In principle* it is none of these. It only becomes so *in practice* when theorists in a given field fail to construct systematic theories of obstacles. It is this domain-specific, rather than global, failure that explains the historical demise of essentialism in biology. A clear understanding of why essentialism was abandoned in biology can shed new light upon the ongoing collapse of essentialism in the social sciences. Moreover, it also points to an alternative framework for constructing theories of social change — population thinking.

The Breakdown of Essentialism in Biology

The breakdown of essentialism in biology was a complex process spanning at least two centuries. The essentialist belief that each species had a distinct and fixed nature first came under attack in the 18th century. Nominalists such as Bonnet and Robinet (Lovejoy 1936; Mayr 1976) contended that "All groupings, all classes, are artifacts of the human mind" and that, therefore, only individuals are "real" (Mayr 1976, 429). This blurring of species boundaries was reinforced in the minds of some naturalists — e.g., Buffon — by a commitment to Aristotle's principle of continuity — the belief that species grade imperceptibly one into another (Lovejoy 1936). Both of these ideas suggested that species were merely the *arbitrary constructions* of human observers. The growing conviction, in the minds of some naturalists, that species boundaries were "vague" and/or that species lacked fixed essences provided a first step towards theories of species transformation.[2]

The first theories of biological "evolution" were merely "temporalized" versions of the Chain of Being (Lovejoy 1936). That is, the originally static scale of nature — the unilinear sequence believed to extend from the least to the most complex organism — was reinterpreted towards the end of the 18th century as a process occurring in time. Such theories of biological progress were essentialist in that they posited a context independent natural path of change with the environment treated as a secondary interfering force. Lamarck's theory of evolution is perhaps the best-known example of this approach to theorizing biological change. However, the inability of Lamarck and other biologists to construct convincing theories of obstacles — e.g., Lamarck's theory of use and disuse (Ruse 1979, 8) — eventually undermined attempts to build theories of biological evolution based on Aristotle's NSM.

Darwin eventually overcame these difficulties by rejecting essentialism in favor of population thinking (Mayr 1976). That is, rather than seeing variation as merely "deviations" from some fixed ideal, Darwin took it as his theoretical start-

ing point.[3] Darwin likewise abandoned the essentialist belief in a context-independent "natural" path to evolution. Instead, he used his theory of natural selection to argue that the differential survival of variants within a population would eventually lead to divergences in character and adaptation to local conditions. Darwin's cousin, Francis Galton, underscored this radical shift to population thinking by renaming the "law of errors" the "normal" curve (Sober 1980).[4] That is, prior to the Darwinian revolution essentialists saw this curve as useful because it provided a methodology for separating the "natural" from the "accidental." One need only plot data on a particular phenomenon and ascend the curve to find the mean. For essentialists it was this ideal — e.g., the "nature" possessed by each member of a species — that was causally efficacious and thus explanatory. Diversity was neither. It was simply a side effect — i.e., "errors" made by nature in attempting to reproduce a prototype. Such "errors" were "explained or explained away" through reference to interfering forces (Sober 1980, 370). In contrast, Darwin and subsequent populationists attempted to account for patterns of diversity in one time period through reference to earlier patterns of diversity. From the perspective of populationists, the diversity represented by the bell curve was now seen as "normal," not only because it was found everywhere in nature, but because existing diversity was seen as a *cause* of subsequent diversity. As Sober (1980, 370) notes, "Rather than looking for a reality that *underlies* diversity, the populationist can postulate a reality *sustained* by diversity."

Thus, in contrast to the NSM, Darwin's approach to theory construction is *frame-relative* because it abandons Aristotle's goal of partitioning the natural from the accidental. From the perspective of evolutionary theory, such a partitioning is considered impossible even in principle (Sober 1980). For instance, at the ontogenetic level a gene quite literally has no "meaning" except in relation to a specific genomic and environmental context. Likewise, at the phylogenetic level changes in diversity in successive time periods can only be explained through reference to intervening environments (Sober 1980). Thus, biologists have replaced the twin essentialist problematics of analytically separating "nature" from "nurture" and the "ahistorical" from "historical" elements of evolution in favor of more interesting frame-relative questions, such as constructing norms of reaction which graph the alternative developmental outcomes of a given genotype across varying environments (e.g., the height of a single corn genotype as a function of different levels of soil nitrogen) or niche theories which predict a population's optimal niche width in relation to specific patterns of environmental change.

Finally, although Darwin ([1859] 1958, 67) himself never entirely overcame his conviction that the term "species" was "arbitrarily given for the sake of convenience," the subsequent history of biology has demonstrated that the choice between essentialism and nominalism is a false one (Mayr 1976). Both have been supplanted by a biological species concept that defines species as bounded networks, the boundaries of which are delimited by a lack of exchange of genetic information. Darwin's confusion derived from the erroneous assumption that categories had to be "fixed" in order to be "real" (Sober 1980). A biological species concept cuts through this false dichotomy. While in the early stages of speciation the differences between varieties are ambiguous, and thus purely "nominal," as boundaries to genetic exchange form distinct and non-arbitrary species emerge. Such a relational concept of species escapes the twin horns of the essentialist versus nominalist dilemma by being historical yet realist.

The Breakdown of Essentialism in the Social Sciences

Essentialist social theorists have met with the same difficulties as their earlier counterparts in biology. As noted above, until recently virtually all theories of social "evolution" have been predicated on Aristotle's NSM. As in the biological case, the complexity of social history requires that theorists employing this framework construct systematic theories of "obstacles" to account for "deviations" from predicted "natural" paths of change. In the absence of such ancillary theories, accounting for the relationship between social structure and environment (physical, biological or social) becomes impossible within an essentialist framework because it is a theory of obstacles which provides the mapping between the uniformity of hypothesized natural states and the diversity of actual historical experience. Marxian theorists' inability to explain the persistence of the family farm (McLaughlin 1998) and functionalists' unsuccessful attempts to explain change in terms of "flexibilities and strains" (Bock 1956) are just two examples of this recurrent failure. Moreover, in contrast to biologists, social scientists must account for the role of human agency in history. Essentialists have had even less success addressing this question. Typically, actual agents on the historical stage are replaced with puppets whose movements are dictated by the strings of a closed conceptual system (Dally 1991).

Essentialists' inability to clarify the interrelationships between structure, agency and environment has led to a number of divergent reactions within twentieth-century social science. For instance, theorists in the ecological tradition — ecological anthropology, organizational ecology, evolutionary economics — have abandoned the NSM, attempting instead to explain the relationship between social structure and environment by employing various concepts of adaptation — e.g., homeostasis, development, rational choice and

population thinking (Toulmin 1981). Sociologists in the constructivist tradition have likewise rejected the NSM but have moved towards a focus on culture and language in order to address the complexities of human agency. However, each of these traditions has reached an impasse precisely at the point where it fails to deal with the other's concerns.

The Ecological Tradition

In the following discussion, I will focus on organizational ecology (Hannan and Freeman 1989) to illustrate both the strengths and limitations of the ecological tradition. Organizational ecology is one of a number of populational accounts of social change to have recently emerged within various subdisciplines of the social sciences — e.g., human ecology (Boyd and Richerson 1985; Dietz, Burns and Buttel 1990), economics (Nelson and Winter 1982), political science (Ostrom 2000) and philosophy (Jensen and Harre 1981). However, of these, organizational ecology has generated the most sustained program of empirical research and thus will be taken as an exemplar of the ecological tradition.

Seen within the context of the history of organizational sociology, organizational ecology represents the culmination of a shift from "closed" to "open" systems theories that began within this field in the early 1960's (Scott 1987). Underlying this transition is the same radical inversion of philosophic assumptions that occurred in the course of the Darwinian revolution — i.e., a shift from frame-invariant to frame-relative thinking.

Prior to 1960, organizational theorists took it for granted that the first step in theory construction was to identify the "essential" characteristics of all organizations or a limited number of organizational "types." The central analytical task for these theorists was to derive the theoretical implications of such classifications. For instance, Frederick Taylor assumed that "rationality" was an essential feature of all organizations and proceeded to derive propositions regarding the nature of control arrangements and reward systems based on this definition. Likewise, Parson's AGIL scheme was premised on the classification of all organizations into categories based on the functional "need" — i.e., adaptation, goal attainment, integration and latency — that they serve. The difficulty with such typologies is that they explain neither the origins of the organizational types posited nor how diversity within or between types was subsequently modified by environmental circumstances (Scott 1987). In short, closed system theorists lacked a systematic theory of obstacles.

In the 1960's, theorists such as Stinchcombe (1965) and Thompson (1967) abandoned the search for essential characteristics and began focusing on organizational diversity and processes of adaptation. As Thompson (1967, vii) observed:

> *No useful theory can rest on the assumption that everything is unique. It is probably inevitable that the early history of a scientific endeavor will be characterized by the opposite assumption, and by the search for universals. This certainly has been the case with organization theory, which until recently has been* ***preoccupied with discovering the essential elements of all complex organizations.***
>
> *I believe it is a sign of relative maturity when a field begins to* ***focus on patterned variations*** (emphasis mine).

Organizational ecologists have taken this trend toward open systems thinking to its logical conclusion. Rather than postulating a context-independent "natural" path to organizational evolution, they have attempted to follow Darwin's lead by conceptualizing change in populational terms as a continuous interaction between variation and context and by seeing organizational categories *not* as preexisting abstractions but rather as *outcomes* of historical processes (Hannan and Freeman 1986). The result has been a rich and rapidly expanding research program on the demography, population ecology and community ecology of organizations.

Yet, organizational ecology's undeniable success has been bought at the price of an overly structuralist and thinly historical account of social change (Zucker 1989). The inertia metaphor has restricted organizational ecologists' focus to the ecological level of analysis and precluded any serious consideration of the interpretive processes by which individual and corporate actors perceive their surroundings and act on those perceptions to continuously construct and reconstruct themselves and their environments (Fombrun 1988). Moreover, by treating actors as passive, by reifying social environments as "natural" and by not adequately addressing questions of power and conflict, organizational ecologists have left themselves open to charges of conservative bias (Perrow 1986). The inertia metaphor has likewise impeded attempts to build bridges to other open system theories that employ homeostatic, developmental or rational modes of adaptive explanation (Meyer 1990). By labeling these "adaptationist" and opposing them to population thinking (e.g., Hannan 1986), organizational ecologists needlessly perpetuate social scientists' tendency to treat these various mechanisms as competing rather than complementary forms of explanation (Toulmin 1981). Such difficulties are compounded by an overly positivist style of research and a concomitant neglect of thick historical description and substantive relevance (Baum and Powell 1995). Organizational ecologists have thus undermined their own stated goal (Hannan and Freemen 1989) of readdressing the broader theoretical, historical and political concerns of the classical theorists.

Resource mobilization theory exhibits a similar set of strengths and limitations. Paralleling the shift from closed to open systems thinking in organizational sociology, resource mobilization theorists (e.g., Jenkins 1983; McCarthy and Zald 1977; Tilly 1978) have abandoned earlier "breakdown" models that conceptualized social movements as "deviations" from some "normal" path of development, focusing instead on *frame-relative* questions involving the intersection of organizational strategy and resources. However, despite their greater attention to historical context, power and conflict, resource mobilization theorists have failed to adequately address questions of agency, ideology and grievance interpretation (Klandermans 1992). In McCarthy and Zald's (1977) case, these limitations derive directly from a reliance on essentialistic assumptions about "rational" actors (Ferree and Miller 1985). As Buechler (1993) notes, using such simplifying psychological assumptions runs the risk of treating participants and movements who do not fit this model as "deviant." While organizational ecologists make no specific assumptions about "human nature," their importation of the inertia metaphor from Newtonian mechanics has led to a similar set of difficulties.

The Constructivist Tradition

One route to recapturing the broader agenda prematurely surrendered by organizational ecology is to build stronger theoretical bridges to the constructivist tradition. Constructivists have reacted to essentialists' failure to address human agency by reconceptualizing social categories, not as universal and invariant, but rather as cultural conventions that are negotiated and contested by actors situated within particular historical contexts (Donati 1992). Such interconnected sets of socially constructed categories or "frames" provide a basis for forging shared meanings and coordinating social action.

The constructivist tradition has generated a compelling set of perspectives linking agency, language, culture and power. However, although it has succeeded precisely where the ecological tradition has fallen short, the constructivist tradition has failed to adequately theorize the dynamics of social structure. A principal cause of this failure is the tension between nominalism and realism which constructivism inherited from pragmatism (Ritzer 1992). While early constructivists, such as Schutz, resolved this tension and maintained the goal of an objective science of subjective meaning by placing phenomenological brackets around questions of ontology (Thomason 1982), in recent years constructivism has taken a decidedly nominalist turn. Thomason (1982) contends that Berger and Luckman (1967) accelerated this shift by rejecting Schutz's "ontological agnosticism" in favor of a view of social categories as *merely* "reifications." As Ritzer (1992, 252) notes, "Berger and Luckman gave absolutely no sense of the other aspect of reification — i.e., the degree to which society, as a result of the subjective processes they describe, objectively comes to acquire a life of its own." Radical post-modernists such as Latour (1987) and Woolgar (1988) have taken this nominalist position to its logical anti-realist extreme by questioning the intelligibility and even existence of an "external reality."

Nevertheless, it would be premature to abandon constructivism as a relativist and anti-realist cul-de-sac. On the contrary, I argue below that moderate constructivists' (e.g., Snow et al. 1986) insights into agency, language, culture and power hold the key to filling in the lacunae of organizational ecology and resource mobilization theory. Moreover, even radical post-modernists may unwittingly be contributing to a new science of society. By focusing on the socially unique and idiosyncratic, on life on the margins, by substituting local for grand narratives, in short, by making "normal" what from a modernist perspective is merely "deviant," radical constructivists are driving the final nails in the coffin of essentialism. Shifting the starting point of theory construction from "essential" characteristics and "natural" paths of change to variation and diversity was precisely the role that nominalism played in the Darwinian revolution.

Towards a Populational Theory of Social Change

The historical parallels with the Darwinian revolution suggest a way out of the current impasse in the social sciences. Although radical post-modernists remain wedded to a deconstructionist project, other theorists increasingly recognize the need to stake out a middle ground between essentialist-based objectivism and nominalist-induced relativism (Bourdieu 1985). For example, Brown (1990) has discussed what he calls "symbolic realism," while Rorty (1991) has elaborated a related neo-pragmatist position. More recently, Rosa (1998) has developed the notion of "reconstructed realism" in relation to questions of risk.

I believe that this emerging consensus reflects two assumptions. First, it represents an acknowledgment that "*even if* reality is symbolically constructed, some constructions are surely preferable to others" (Simons 1990, 22). If such preferences are systematically related to the physical, biological and social environments in which specific social constructions are instantiated, then processes of variation, selection and retention may provide a mechanism by which alternative constructions are perpetuated or sifted from the historical stream. Such a position is consistent in spirit, if not detail, with an evolutionary perspective on social change. In fact, it is not difficult to find incipient forms of population thinking within constructivism. West (1985) provides such an analysis of Weber, while Rorty (1991) notes the parallels between Darwinism and pragmatism. Likewise, the theory of

cultural change that Lyman (1990) claims to have "discovered" in Goffman, by his own accounting, amounts to nothing more than variation, selection and retention.

The second element of this emerging consensus is the reconceptualization of social categories in relational rather than essentialist or nominalist terms (Bourdieu 1985). Like biologists, many social scientists are beginning to treat categories as bounded networks. Such an historical yet realist approach to categorization has always been implicit within constructivism. Perhaps the best example is Weber's (1946, 187) definition of a status group as a "style of life" which places "restrictions on 'social' intercourse." However, the strong nominalist undercurrents within constructivism have continually driven adherents of this tradition onto the twin horns of the same dilemma that plagued pre-Darwinian biologists — i.e., assuming that categories are either fixed or not real. As Mayr (1976, 288) notes, it was precisely this "wrong choice of alternatives" — i.e., between essentialism and nominalism - that was the major obstacle to the Darwinian revolution. This same false dichotomy pervades the radical constructivist literature. Woolgar (1988) makes precisely this mistake when he concludes that the failure of sociologists of "science" to find some stable, invariant object underlying the historically variable activities given this label leaves nominalism as the only coherent alternative. Even Thomason (1982, 89), in defending Schutz's ontological agnosticism, falls into this trap when he concludes that Schutz's "approach is constructivist, nonetheless, and does, therefore, *assume* that the 'things' which are reified are 'really' not 'things.'"

Conceptualizing social categories as bounded networks will cut through this false dichotomy, just as it did in biology, while maintaining constructivism's central insight that social categories are historically fluid and manipulable by human agency. When extracted from a nominalist framework the constructivist metaphor becomes a powerful tool for understanding social change and the sense in which subjective processes come to acquire an objective "life of their own" becomes readily intelligible — i.e., purely arbitrary social and ideological contrasts such as race or class become distinct categories to the extent that they provide a basis for well-defined networks of social interaction. When boundaries between such networks form, the frequencies of social rules, idiosyncratic language and culture on respective sides of the boundary typically diverge (Burns and Dietz 1992). Not surprisingly, network theorists have been among the first to argue that social networks should be seen not just as "measurement constructs" but also as "phenomenological realities" (White 1992, as quoted in Emirbayer and Goodwin 1994, 37).

To summarize, social scientists can take a major step towards integrating structure, agency and environment by fully absorbing the major lessons of the Darwinian revolution. That is, they need to reject *both* essentialism and nominalism and replace them with population thinking and an historical yet realist approach to categorization (Mayr 1976).

Beyond the Impasse: Towards an Ecology of Social Action

The above discussion is intended to provide a metatheoretical foundation for an "ecology of social action" which combines organizational ecology and resource mobilization theory's insights into structure-environment interactions with constructivists' attention to agency, language, culture and power. In fact, the elements for such a synthesis already exist. Probably the best example of an historical yet realist approach to organizational taxonomy is Hannan and Freeman's (1986) discussion of organizational boundaries. However, to date, organizational ecologists have failed to connect this provocative analysis to their populational accounts of organizational change (Baum and House 1990). I argue below that this failure can be traced to the reintroduction of essentialist biases into organizational ecology through the borrowing of the "inertia" metaphor from Newtonian mechanics. This metaphor is preventing organizational ecologists from moving beyond very limited borrowings from institutional theory (Zucker 1989) to incorporate the more profound insights of constructivism.

For their part, constructivist theorists have made critiques of resource mobilization theory that parallel those made by institutionalists against organizational ecology, arguing that they focus narrowly on "the how" to the neglect of "the why" of social dynamics (Zucker 1989). Constructivists have attempted to correct this imbalance by focusing on the discursive practices used by individual and corporate actors to transform social networks and boundaries. Nevertheless, while some constructivists recognize the need to see the social construction of meaning as occurring within an organizational context (Klandermans 1992), and that framing activities can impact organizational founding and disbanding rates (Snow et al. 1986), they have thus far failed to connect their analyses to a theory of organizational dynamics.

Clearly, the challenge is to merge these intellectual traditions so as to readdress the macro-structural concerns of Marx and Durkheim in a more dynamic and non-essentialist fashion while retaining Weber and Schutz's commitment to an objective science of subjective meaning. In the following sections, I argue that such a synthesis can be achieved by: (1) abandoning Hannan and Freeman's (1977) inertia metaphor in favor of an explicit focus on organizational plasticity and integrating various modes of adaptive explanation, (2) moving questions of individual and corporate agency and interest

to the center stage of ecological analysis and (3) reconceptualizing the legitimation of organizational forms as a process occurring within the context of a socially constructed adaptive landscape and by focusing on the discursive practices that individual and corporate actors use to manipulate such landscapes and the boundaries between discrete organizational networks.

Abandoning the Inertia Metaphor

Several authors have argued that organizational ecologists' reliance on the inertia metaphor ignores the adaptive capacities of organizations (Fombrun 1988; Meyer 1990; Perrow 1986; Zucker 1989). Though accurate, these critiques fail to penetrate to the heart of the problem, which is the inappropriateness of grounding an *evolutionary* theory of organizational change on a concept with essentialist roots. Although Hannan and Freeman (1989) are careful to define organizational "inertia" in terms of relative rates of change rather than "natural tendencies," the inertia metaphor still carries with it essentialist overtones derived from its origins in Newtonian mechanics.[5] Importing such a metaphor into an evolutionary framework allows the developmentalist assumptions, which organizational ecologists claim to have abandoned (Carroll 1984), to be subtly reintroduced.

Thus, although they avoid making explicit essentialist assumptions about "rational actors," organizational ecologists have used the inertia metaphor as a justification for "black boxing" questions of agency and interest. Organizational ecologists' theoretical strategy, in this regard, is similar to institutionalists' "defocalizing" the role of agency in institutional processes (DiMaggio 1988). While Hannan and Freeman (1989, 339) maintain that they are simply constructing theories "that are robust with respect to assumptions about individual motivation," in practice this agential agnosticism results in an effective severing of the micro and macro levels of analysis. Moreover, since questions of meaning and interests are sidestepped and the internal dynamics of organizations ignored, questions of power and conflict are rarely addressed (Perrow 1986).

Echoes of Aristotle's division between the "natural" and the "accidental" are also apparent in organizational ecologists' desire to partition the "ahistorical and historical elements" of social evolution (Hannan and Freeman 1989, 19) and in their tendency to "artificially separate organizations from their environments" (Fombrun 1988, 230). For instance, with respect to organizational size distributions, organizational ecologists have failed to differentiate between an evolutionary approach, which maintains that environmental heterogeneity *may* produce bi-modal size distributions, and a frame-invariant one which treats such an outcome as a universal, context-independent process — i.e., one which occurs, as Durkheim insists, "not because external circumstances are more varied, but because the struggle for existence is more acute" (Hannan and Freeman 1989, 125). Additional essentialist echoes are apparent in organizational ecologists' tendency to decontextualize processes of legitimation and competition. Such processes are treated as "internal," "timeless" and "ahistorical," while "external" historical factors are relegated to the status of "controls" (Hannan and Freeman 1989) or ignored altogether in the case of physical and biological environments. For example, organizational ecologists have abandoned their earlier concerns with the role that collective action, the closure of social networks and the gaining of "insider knowledge" (Marrett 1980) play in the legitimation process. Instead, legitimation has been reduced to a "cognitive" process — i.e., increased taken-for-grantedness — that is treated as an unmeasured intervening variable between organizational density and various vital rates. Thus, while much of postmodern social science is moving towards an emphasis on the historical embeddedness of social actors and processes — what Dally (1991, 90) calls "radical relationalism" — population ecologists are moving in the opposite direction. Such a strategy is inconsistent with evolutionism and needlessly sacrifices any hope of capturing the active, contested character of the legitimation process (Baum and Powell 1995).

These difficulties could have been avoided simply by recognizing that inertia is not a necessary component of a Darwinian theory of change, which requires only three preconditions: (1) variation, (2) selection and (3) retention (Campbell 1965). Moreover, the latter should not be misconstrued as equivalent to inertia (e.g., as in Carroll 1984; Hannan and Freeman 1977). Even in the biological case, heritability is compatible with a wide range of structural and behavioral plasticity (Scheiner 1993). Recent empirical work on organizational change has, in fact, begun to move in this direction, painting a more complex picture in which the impact of change on organizational fitness depends on organizational age, size and the frequency, sequencing and type of changes (Amburgey, Kelly and Barnet 1993; Haveman 1993; Kelly and Amburgey 1991; Miner, Amburgey and Stearns 1990). However, if organizations vary in their *adaptive capacities* and if environments vary in the degree to which they select for such capacities (Fombrun 1988), then "inertia" is *neither* a necessary precondition nor an invariable consequence (Hannan and Freeman 1984) of organizational evolution. It is simply an empirical question (Winter 1990).

The preceding arguments suggest that "inertia" and related Newtonian metaphors such as "momentum" (Kelly and Amburgey 1991) should be abandoned in favor of an explicit focus on organizational plasticity and integrating various modes of adaptive explanation (Toulmin 1981).

Organizational ecologists' primary goal should not be to try to establish which is more important, selection or adaptation, structure or agency, but rather to *integrate* these concerns into "a general theoretical framework which would capture the dialectical interplay between 'action' and 'structure' " (Reed 1988, 35). Rather than settling for the limited objectivist goal of building theories that are "robust" with respect to agency and interests, organizational ecologists need to put such questions at the center stage of ecological analysis.

The Centrality of Agency and Interests to Organizational Evolution

In contrast to organizational ecology's current agential agnosticism, Dietz and Burns (1992) contend that an evolutionary perspective on change actually facilitates the integration of agency into social theory. A brief consideration of Emirbayer and Mische's (1998) recent discussion of agency supports this claim and highlights the potential affinity between evolutionary theory and a concern with agency. Emirbayer and Mische (1998, 963) define agency as:

> *...a temporally embedded process of social engagement, informed by the past (in its habitual aspect), but also oriented toward the future (as a capacity to imagine alternative possibilities) and toward the present (as a capacity to contextualize past habits and future projects within the contingencies of the moment).*

Emirbayer and Mische's definition emphasizes that agency is inherently temporal and thus can only be understood within a dynamic framework. The necessity of taking the temporal dimensions of change seriously is one the hallmarks of evolutionary theorizing (Greenwood 1984). In contrast, essentialist theories, which are rooted in Aristotle's distinction between the "natural" and the "accidental," have been extensively criticized for their tendency to become disconnected from considerations of time and place (Bock 1956). Although organizational ecology exhibits some of these latter difficulties, it nevertheless shares with other evolutionary perspectives a commitment to understanding the temporal dimensions of social processes, as evidenced by its extensive use of event-history methodology.

Emirbayer and Mische (1998, 975) also argue that agents have the ability "to recall, to select, and to appropriately apply the more or less tacit and taken-for-granted schemas of action that they have developed through past experience." Although this iterational dimension of agency occurs with little conscious reflection, the proper deployment of alternative schemas within specific temporal-relational contexts still requires attention and engagement on the part of actors. Such a conceptualization of agency is consistent with an evolutionary perspective. In fact, "heritability" is one of the three prerequisites of any evolutionary theory (Campbell 1965). As Dietz and Burns (1992) note, social learning through imitation is much more efficient than trial and error experimentation. Moreover, they argue that social learning is an active process, one that always requires some degree of improvisation on the part of actors.

Essentialistic theories also contain an iterative dimension. However, within such a teleological framework actors' choices are typically reduced to accelerating or retarding "natural" developmental trends (Dietz and Burns 1992). The agentic moment of iteration is thus neglected or ignored. Rational choice models, which essentialize individual actors, exhibit similar difficulties (Burns and Dietz 1992). While the "heritability" of social rules and routines is central to organizational ecology (Hannan and Freeman 1989), the inertia assumption has led theorists in this tradition to likewise disregard the agentic dimensions of iteration. For example, organizational ecologists' strategy of treating legitimacy as an unmeasured intervening variable — linking density and vital rates — leads them to gloss over the complex internal and external projects engaged in by actors to legitimate new organizational forms. Similar difficulties are apparent in recent work on intraorganizational evolution by Burgelman and Mittman (1994). While these authors concede to managers some degree of bounded "rationality," other organizational participants are treated as passive receptacles for "induced" or "autonomously" created managerial routines.

According to Emirbayer and Mische, actors also manifest agency through their orientation toward the future and their ability to imagine alternative possibilities. Moreover, they note that social scientists have tended to ignore this projective dimension of agency due to a perceived incompatibility between subjective phenomena and "behavioral observation, survey techniques, and macrostructural analysis" (Emirbayer and Mische 1998, 991). I would argue that social scientists' neglect of the projective dimension of agency is also rooted in the historical dominance of essentialism in the social sciences. Within an essentialistic framework, variability of any type tends to be discounted as merely "deviations." Such theories fail to capture the spontaneous and reflexive abilities of actors, treating them instead as passively "programmed" by their respective cultures (Dietz and Burns 1992). In contrast, evolutionary theories take variation as their theoretical starting point. In fact, Dietz and Burns (1992) go so far as to suggest that theories of social evolution may *require* the concept of agency because agency is the only mechanism able to produce sufficient variability to make such a theory viable.

From an evolutionary perspective, the variability produced through the creative and even playful engagement of

social actors is inevitably subject to the selective forces presented by the environment. The resulting differential propagation of alternative social rules, schemas or forms of organization produces additional diversity on successive levels of analysis as networks with different frequencies of these respective types of variation diverge and rediverge — and sometimes merge — into discrete networks of social interaction (Burns and Dietz 1992). As Darwin's ([1859] 1958) metaphor of a branching tree suggests, evolution is inherently multilinear. While selection within specific environments may push populations to evolve along particular trajectories, there is no *overall* direction to the evolutionary process. Translated into the social domain, such an open-ended framework is entirely compatible with the notion that actors pursuing alternative imaginative projects can play an independent causal role in history. Successful projects become the branching points of the socio-historical tree. In contrast, essentialistic theories, which privilege certain historical trajectories as "natural," tend to treat peoples and projects that behave in a manner inconsistent with the hypothesized developmental trend as deviant or pathological. Organizational ecology, because it has focused primarily on the dynamics of individual organizational populations, has thus far had little to say about the broader patterns of organizational evolution. However, I will argue below that confronting this issue will require organizational ecologists to address the discursive and claims making activities of individual and corporate actors directly.

Finally, Emirbayer and Mische's (1998) approach to agency underscores the social embeddedness of actors and their ability to contextualize past patterns of thought and action and alternative projections of future actions within the contingencies of current circumstances. Such a conceptualization of agency is consistent with Dally's (1991, 90) contention that the social sciences are moving towards a form of "radical relationalism." Such a position is completely at variance with essentialistic theories whose very goal is to decontextualize social actors and processes in order to produce *frame-invariant* laws (Bock 1956). Organizational ecologists' reliance on the inertia metaphor has led to a similar tendency to abstract organizational actors and processes from historical context. However, as the above discussion of the Darwinian revolution makes clear, evolutionary thinking is premised upon a commitment to a *frame-relative* approach to theory construction (Sober 1980) which insists that the entities evolving — whether biological species, social rules or organizations — cannot be divorced from their respective contexts. As Burns and Dietz (1992) note, the necessity of contextualizing social action within historically specific physical, biological and social environments is one of the defining features of an evolutionary perspective on social change.

If an "ecology of social action" is to avoid the current pitfalls of organizational ecology and provide a theoretical framework that is fully dynamic, open-ended and contextualized, it must studiously avoid the twin traps of reducing individual or corporate agents to essentialized "rational actors" or "ideological dupes" (Donati 1992, 155). Both of these traps can be averted by explicitly grounding a revised ecology of organizations on a constructivist perspective on agency. Constructivists conceptualize actors as operating within a discursive framework, interpreting their experiences in relation to hierarchical and articulated sets of "frames" which provide " 'schemata of interpretation' that enable individuals 'to locate, perceive, identify, and label' occurrences within their life space and the world at large" (Snow et al. 1986, 464). Moreover, alternative frames constitute "tools kits" used by contending parties to actively construct and deconstruct social and political reality (Donati 1992). Conceptualizing agency in terms of framing processes is consistent with Emirbayer and Mische's (1998, 993) definition of agency as a process of "temporally constructed engagement." The next question to be addressed is how such a constructivist perspective on agency can be integrated into an evolutionary account of social structure? In the following section, I develop the concept of a socially constructed adaptive landscape as the central metaphor for linking the ecological and constructivist traditions.

Organizational Evolution within a Socially Constructed Adaptive Landscape

In his path-breaking work on forms of control in the labor process, Edwards (1979) put forward the metaphor of a "contested terrain" to describe processes of negotiation and contention within the workplace. Although Edwards and other labor process theorists were successful in refocusing attention on issues of power and conflict, their contribution was ultimately limited by their commitment to an essentialist analysis of organizational dynamics. More recently, Bourdieu (1985), in what he describes as a break with Marxist theory, has advanced the concept of a social topology — i.e., a socially constructed and contested multi-dimensional space defined by accumulations of various forms of social and material capital. Donati (1992) alludes to a similar concept.

The metaphor of a contested terrain suggests the possibility of a more profound convergence between the ecological and constructivist traditions. From an evolutionary perspective, various dimensions of the physical, biological and social environment can be conceptualized as "adaptive landscapes." The hills and valleys of such landscapes define varying levels of fitness and, thus, differential probabilities of survival and propagation for social rules, routines or organizations.[6] Thus, in contrast to the above metaphors, the notion of

an adaptive landscape has the advantage of providing a mechanism — differential survival — that can explain patterns of structural change. Such a metaphor is implicit within organizational ecology. Unfortunately, the inertia metaphor has led organizational ecologists to reify such landscapes as "natural" (Perrow 1986). The result is a fairly mechanistic image of the evolutionary process, one in which organizations are passively selected by social environments which are treated as entirely exogenous. However, if individual and corporate actors are continually generating alternative courses of action and bringing those imaginative projections and the lessons of past experience to bear on current pragmatic situations, then it is theoretically untenable and historically inaccurate to treat adaptive landscapes as simply "given." Rather, as both Bourdieu (1985) and Donati (1992) suggest, such landscapes must themselves be seen as subject to continual construction and reconstruction. I believe that the metaphor of a *socially constructed adaptive landscape* provides a more dynamic and historical image of the evolutionary process, one in which more or less bounded networks of organizational actors are conceptualized as simultaneously adapting to and actively reshaping their environment(s).

Such a reformulation of organizational ecology has a number of advantages. First, it clarifies the interrelationship between structure, agency and environment. For instance, it provides an intelligible framework for answering the following question posed by Emirbayer and Mische (1998, 964): "If structural *contexts* are analytically separable from (and stand over and against) capacities for *human agency*, how is it possible for actors to mediate or transform their own relationships to these contexts?" Within a socially constructed adaptive landscape, individual and corporate actors alter their structural contexts by engaging in various discursive and claims-making activities and by directly employing economic and political power. To the extent that they are successful in persuading, manipulating or dominating other actors who control various forms of social and material resources they reshape the contours of the social dimensions of the adaptive landscape. Actors also modify biophysical dimensions of the landscape by deploying various technologies and associated organizational routines. In either case, such reconstructions of the evolutionary terrain alter the structural contexts of action by changing the founding and disbanding rates for social rules, routines and organizations. Such structural shifts, in turn, create opportunities for and impose constraints upon subsequent action. Thus, the metaphor of a socially constructed adaptive landscape acknowledges the centrality of agency to organizational evolution without giving agency unlimited scope (Dietz and Burns 1992). At the same time, it retains organizational ecology and resource mobilization theory's emphasis on resources as a fundamental constraint on social action.

A second advantage of this metaphor is that it allows critical theorists' (Fischer and Sirianni 1984) concerns with power and conflict to be brought back into the ecological model, while avoiding the essentialist pitfalls associated with Marxian approaches to organizational dynamics. Relative power within this framework can be conceptualized in terms of individual or corporate actors' position within the adaptive landscape, which represents accumulations of various forms of social and material capital (Bourdieu 1985). Considered in dynamic terms, power implies the ability to actively mold the contours of the adaptive landscape. As Dietz and Burns (1992, 266) note, powerful actors can not only determine what rules are applied in a given situation, but, in the long run, change the distribution of rules to favor their own interests. Questions of power and conflict also arise in relation to the construction and deconstruction of boundaries between organizational networks (see below).

Finally, from the perspective advocated here questions of "why" social actors do what they do must be seen as theoretically on a par with questions relating to "how" actors accomplish their objectives (Zucker 1989). That is, if individual and corporate actors' perceptions of and attempts to manipulate the adaptive landscape are guided by hierarchical and articulated sets of "frames" (Clemens 1993; Snow et. al 1986), then questions of meaning and interests, ideology and grievance interpretation cannot be black boxed or sidestepped. Rather, as Emirbayer and Mische (1998) contend, such questions must be seen as constitutive to any attempt to understand social dynamics. In the final section of the paper, I briefly explore the implications of such a revised version of organizational ecology for the study of the origins, legitimation and diversification of organizational forms.

From Theory to Practice

The Origins of Organizational Forms

As noted above, closed-system theorists had little to say regarding the origins of organizational forms (Scott 1987). Unfortunately, despite their many other contributions, organizational ecologists have provided few additional insights into this critical issue. In their empirical work, they have taken the emergence of new forms for granted, defining the origins of a form as coinciding with the appearance of the first organization of the population in question (Hannan and Freeman 1989). While this strategy may be adequate for purposes of modeling the subsequent dynamics of the form, it leaves the antecedent causal processes undergirding form emergence unexamined.

The reformulation of organizational ecology sketched above suggests that a complete account of form emergence will require an understanding of the interrelationships

between structure, agency and environment. Of course, it is agency that is most conspicuously absent from organizational ecologists' current accounts of form emergence. Emirbayer and Mische's (1998) perspective implies that the emergence of a new organizational form should coincide with a shift towards the projective dimension of human agency. But precisely when do such shifts in agentic orientation occur? Emirbayer and Mische's (1998) suggestion that such shifts occur during "unsettled times" is similar to Snow et al.'s (1986) argument that new forms of social movement organizations (SMO's) emerge when master frames can no longer cope with changing political, economic, or environmental conditions.

While Emirbayer and Mische's (1998) arguments regarding shifts in agentic orientation and Snow et al.'s (1986) thesis concerning frame changes provide crucial elements that are missing from organizational ecologists' accounts of form emergence, their respective references to "unsettled times" and "changing conditions" suggest that the timing of such shifts may themselves be mediated by structural and environmental dynamics. For instance, elsewhere I (McLaughlin 1992, 1996) have argued that the origins of the farmers' movement in Saskatchewan Canada can only be understood in terms of: (1) individual and corporate actors reacting against the competitive ethos of frontier capitalism by developing an alternative injustice frame grounded in cooperative ideology, (2) a shift from a generalist to a less flexible specialist cost structure among family farmers — rather than simply crop-specialization *per se* as suggested by Lipset (1968) — which was driven by an accelerating trend toward debt-financed mechanization at the turn of the century and (3) an unpredictable physical environment and an unstable wheat market which kept farmers' incomes highly variable (Fairbairn 1989). The resulting cost-price squeeze created a niche mismatch between the increasingly rigid cost structures of family farms and highly variable physical and economic environments that eventually undermined alternative explanations of farm stress or failure — e.g., attributing failure to personal characteristics such as bad management or a lack of hard work or to uncontrollable external forces such as bad luck or bad weather. Capitalism was left as the most plausible villain. It was thus a confluence of agentic, structural and environmental factors which forced Saskatchewan's farmers' to gain the "reflective distance" (Emirbayer and Mische 1998, 973) necessary to question the routinized assumptions of competitive capitalism and embark on a transformative "project" to reconstitute the socio-economic landscape of the province by constructing new niches for educational and lobbying organizations, marketing and consumer cooperatives and a farmers' political party.

The above arguments suggest that organizational ecologists can strengthen their accounts of form emergence by: (1) moving beyond their current exclusive focus on structural dynamics to consider cultural, agentic and, where relevant, the physical-environmental dimensions of form emergence, (2) supplementing their excellent quantitative analyses with equally sophisticated qualitative analyses of the temporal-relational contexts of form emergence and (3) exploring innovative quantitative approaches to analyzing these same processes. For instance, frame shifts and changes in agentic orientation might be quantified using various new methods of textual analysis (Roberts 1997). In the above case, analysis of editorials and letters to farmers' magazines might allow one to explore whether these shifts coincided with increases in the farm failure rates or whether there was a relationship between changes in agentic orientation and the origins of various farmer organizations.

The Legitimation of New Forms

As in the case of form emergence, I argue that the discursive and claims-making activities of individual and corporate actors likewise play a crucial role in the legitimation of new organizational forms.[7] Organizational ecologists allude to these concerns in their descriptions of the legitimation process:

> *The process by which organizational forms gain taken-for-granted status encompasses at least two kinds of activity. One is collective action by members of the population to define, explain, and codify its organizational form and to defend itself from claims and attacks by rival populations. The second is collective learning by which effective routines and social structures become collectively fine-tuned, codified, and promulgated.* (Hannan and Carroll 1992, 41)

It is clear from this statement and others (e.g., Carroll and Hannan 1995; Hannan and Freeman 1989) that organizational ecologists see human agency, including the rhetorical activities typically studied by constructivist theorists, as central to the legitimation process. Although organizational ecologists allude to this complexity, for reasons discussed above, they typically do not analyze it. While this strategy has produced a series of empirical studies that seem to "confirm" the density dependence model (Singh and Lumsden 1990), these same studies have been widely criticized for being poorly operationalized and weakly contextualized (Delacroix and Rao 1994; Baum and Powell 1995; Zucker 1989).

The above reformulation of organizational ecology suggests a new direction for the analysis of legitimation, one that recognizes the need to integrate organizational and cultural dynamics (Baum and Powell 1995). Rather than treating

legitimation as an unmeasured intervening variable that is passively driven by increases in organizational density, I argue that legitimation should be explicitly reconceptualized as an active social process that encompasses the social construction of organizational niches and boundaries. Individual and corporate actors construct new organizational niches by employing alternative discursive frames to remold the contours of a socially constructed adaptive landscape. That is, by actively modifying the social and, in some cases, biophysical dimensions of the adaptive landscape, actors engaged in the legitimation of a new form alter its fitness and, thereby, produce the observed patterns of increased founding and decreased failure rates.

Such a reformulation exposes organizational ecology's current lack of a vocabulary for discussing legitimation as an active social process. However, as suggested above, concepts derived from the constructivist tradition can fill this conceptual gap.[8] For instance, the various "frame-alignment" processes discussed by Snow et al. (1986) can be translated into an evolutionary framework as descriptions of the reciprocal interactions between organizational populations and their adaptive landscapes. In some instances, niche construction may involve simply "frame bridging" to previously existing social networks. In others it might involve the "frame amplification" of the latent values and beliefs of unmobilized sentiment pools, thereby raising the underlying landscape and increasing the form's fitness. In still other cases, niche construction may involve "a deliberate attempt by a social actor to create consensus among a subset of the population" (Klandermans 1992, 78) through such processes as "frame extension" or "frame transformation." The former might be visualized as a widening of an existing ridge of the adaptive landscape to create a lateral niche whereas the latter might be seen as an attempt to construct an entirely new hill or fold in the landscape.

The construction of organizational niches should simultaneously be accompanied by the creation and closure of boundaries between distinct organizational networks (Fombrun 1988; Van de Ven and Garud 1989). That is, I argue that a new organizational form cannot be perceived as "natural" or "taken-for-granted" unless it is first seen as distinct. By reproblemitizing boundaries and by focusing our attention on the discursive practices that actors use to translate "nominal" distinctions into well-defined networks of social interaction, this reformulation counterbalances organizational ecologists' tendency to "artificially separate organizations from their environments" (Fombrun 1988, 230). Likewise, questions of power and conflict are again highlighted. The negotiation and contestation over organizational boundaries must be seen as a central component of the broader political struggle to define the social categories through which the world is perceived (Bourdieu 1985). As DiMaggio (1988, 13) notes, such "institutionalizing projects" are "profoundly political" and reflect "the relative power of organized interests."

Hannan and Freeman's (1986) discussion of "segregating" and "blending" processes provides an excellent starting point for the analysis of boundary formation. Although this provocative piece provides a natural theoretical bridge to constructivism, in their empirical work organizational ecologists have largely ignored its implications. Moreover, Hannan and Freeman's discussion still places insufficient emphasis on the role of agency and culture. Here again constructivism can provide additional concepts. For example, the legitimating and delegitimating struggles attending boundary formation can be conceptualized using Benford's (1993) concept of "frame disputes." As Benford argues, in a social movement context, frame disputes — over diagnoses of problems, prognoses or solutions to problems and disagreements over the resonance or effectiveness of various rhetorical strategies — arise at the boundaries of movement subsectors and play a key role in shaping a movement's overall structure. While such disputes can occur at any time in the course of the evolution of an organizational population, they should be particularly prevalent during the early history of new forms. Moreover, although Benford's concept was intended to apply to SMO's, I believe it should be equally applicable to other types of business and non-business organizations. As Dally (1991, 100) notes, "the economy, like all other spheres, is the terrain of a political struggle, and is governed not by a single logic but by a proliferation of discourses/language games."

The above arguments underscore the need for organizational ecologists to revise and extend their approach to studying legitimation. Whatever its other advantages, the "density dependence" model clearly fails to capture the historical embeddedness and socio-political character of the legitimation process. It is not enough, as Carroll and Hannan (1989, 545) contend, to simply "establish the plausibility of the argument that legitimation drove the early (low density) evolution of the population while competition dominated in the later (high density) period." Such plausibility is, at best, a minimal historical standard and one that is not always met. Thus, organizational ecologists need, first and foremost, to supplement their quantitative analyses of legitimation with thick historical descriptions of the rhetorical and claims-making activities — particularly the framing processes and strategies — employed in the construction of new organizational niches. Such analyses should likewise include detailed consideration of such internal processes as the codification of organizational routines as well as the external frame disputes attending the creation and closure of network boundaries.

Capturing the multi-dimensional character of the legiti-

mation process will also require the exploration of new quantitative approaches. For instance, Baum and Powell (1995) have argued that organizational ecologists should attempt to measure legitimation directly. One approach, which is consistent with the above perspective, is to use various measures of print media. For example, McLaughlin and Khawaja (2000) use the annual count of environmental books published to measure the increasing legitimacy of national environmental organizations in the U.S. during the period 1895-1994. This measure was found to be positively associated with the founding rate even when other variables measuring resources and changes in the political opportunity structure were added to the model. More sophisticated approaches using textual analysis (Roberts 1997) of newspapers or other documents should also be explored. The latter techniques might also be employed to explore the relationship between legitimation and changes in resource levels and shifts in agentic orientation.

The Diversification of Organizational Forms

Finally, I argue that merging the ecological and constructivist traditions is critical to understanding the broader patterns and processes of social evolution. As the concept of a socially constructed adaptive landscape makes clear, the sum total of constructive processes occurring at both the intra- and interorganizational level continually alter both the diversity and dynamics of organizational populations and, in so doing, reconstitute society by altering structures of inequality, exploitation, domination and control (Hannan 1988). The final advantage of an ecology of social action is that it can clarify the role that agency and culture play in such large-scale social transformations. That is, such a perspective may help us to better understand how actors and the alternative meanings they espouse play an independent causal role in history by actively reshaping collective identities, by remolding organizational networks and boundaries and, in the process, creating, extending and transforming organizational niches. As McLaughlin and Khawaja (2000) argue in their analysis of the U.S. environmental movement, understanding the discursive activities of individual and corporate actors is critical to unraveling the dynamics of such complex organizational fields because they provide the critical "isolating mechanisms" which determine the heterogeneity of organizational populations (Baum and Singh 1994) and thus, in a given temporal-relation context, the direction of social evolution. Identifying the sources of such heterogeneity is crucial if organizational ecologists are to readdress the broader theoretical, historical and political concerns of the classical theorists.

Conclusion

Organizational ecology's inability to effectively address questions of individual and corporate agency and interests is symptomatic of a broader failure within the social sciences to develop a comprehensive framework for analyzing the interrelationships between structure, agency and environment. Fombrun (1988, 239) contends that organizational ecology's failure in this regard can be traced directly to "a lingering allegiance to the conceptual baggage of the neo-Darwinian frame of reference." While I agree that organizational ecologists need to be more sensitive to the potential disanalogies between biological and social evolution, my central contention is precisely the opposite of Fombrun's. Both organizational ecology and the social sciences in general can benefit greatly from a deeper understanding of the Darwinian revolution.

Such an understanding can, first and foremost, clarify the sources of some of the central impasses in the social sciences. Most importantly, I argue that the inability of social scientists to integrate structure, agency and environment can be traced to the persistence of essentialism within the functionalist, Marxian and ecological traditions and nominalism within the constructivist tradition. Moreover, as was the case in biology, I believe that the key to overcoming these impasses is a combination of population thinking and an historical yet realist approach to categorization. This combination cannot only provide the underpinnings of a more robust and historical organizational ecology, but also has the potential to provide a new metatheoretical foundation for the broader social sciences. Although the need to account for human agency in the case of social evolution precludes any simple translation of metatheoretical assumptions between biology and the social sciences, I have tried to demonstrate that an evolutionary perspective on social change is actually *more* compatible with current concepts of agency than the essentialistic approaches that have historically dominated social theory.

Finally, the concept of a socially constructed adaptive landscape provides a framework for combining the ecological tradition's concerns with structure-environment interactions, the constructivists' focus on agency, language, and culture and the critical tradition's concern with power and conflict. Such an "ecology of social action" can provide a more dynamic, historical and critical organizational ecology, one that addresses "the co-evolving nature of cultural understandings, organizational forms, and resource constraints" (Baum and Powell 1995, 536). To borrow Francois Jacob's (1982) phrase, the goal of such a revised evolutionary paradigm

should be to reconceptualize social evolution as a continuous dialogue between "the possible and the actual" and see actors and the discursive practices that they bring to bear on pragmatic situations as the focal point of that dialogue. In the conclusion of the paper, I have tried to suggest how this new ecological paradigm can open up fresh avenues for research on the origins, legitimation and diversification of organizational forms.

Endnotes

1. E-mail: pmc1701@aol.com.
2. As Sober (1980) notes, neither the vagueness of species boundaries nor the mutability of species is, in principle, fatal to essentialism. However, in practice many naturalists did find such arguments persuasive. For instance, the arbitrariness of species boundaries was one of the major arguments used by Darwin to justify his belief in evolution (Greenwood 1984, 53).
3. In taking variation as his theoretical starting point, Darwin may have benefited from nominalists' focus on individual differences. Below I argue that extreme post-modernists are playing a similar role in shifting the starting point of theory construction in the social sciences from natural states and paths of change to variation.
4. Although Sober (1980) is correct in acknowledging Galton's contribution to population thinking, it is important to note that Galton was a committed Social Darwinist who advocated a theory of progressive, saltative evolution between fixed racial types. Such a position is inconsistent with Darwin's theory of evolution. In fact, Social Darwinism represents an assimilation of Darwinian concepts back into an essentialistic framework. As Greenwood (1984) notes, invariably such misappropriations of Darwinian concepts are made for the purposes of legitimating some moral or political position.
5. In addition to the direct appropriation of Newtonian metaphors such as "inertia," organizational ecologists may also be indirectly influenced by physicalist (and hence essentialist) assumptions through their borrowing of certain mathematical models from ecology. For instance, two physicists, Alfred J. Lotka and Vito Volterra, created the Lotka-Volterra equations, which play a central role in biological and organizational ecology. Lotka and Volterra and subsequent researchers such as Raymond Pearl initially conceptualized these equations in terms that Sober (1980) would label "frame-invariant." That is, their goal was to create ecological "laws" which allowed a strict separation of "internal" (genetic) and "external" (environmental) factors (Kingsland 1985). Moreover, the latter were conceptualized as interfering forces or obstacles while the former were assumed to be fixed over the short-term — a methodological assumption introduced to simplify the mathematics. As Kingsland (1985) notes, critics contended that these researchers abstracted biological populations from their environmental and historical contexts and argued that mathematical modeling needed to be supplemented with detailed natural histories. Others contended that a rigid separation of internal and external factors influencing population growth was ultimately not possible because, among other reasons, organisms significantly modified their own environments. As Kingsland's (1985) account makes clear, over the course of the century, this latter, "frame-relative" approach to population biology has gradually but not completely won out. My contention is that organizational ecology's shortcomings as currently constructed may derive from the lingering influence of the earlier, frame-invariant, approach to population dynamics.
6. Fitness in the biological case is defined in terms of relative reproductive success — i.e., the ability of one genotype to produce more offspring that survive to adulthood than another genotype in a given environment. Defining fitness in the case of organizational populations is complicated by two facts. First, although one can metaphorically speak of organizational "births," in many cases there is no clearly defined analogue to a "parent." Second, unlike organisms, individual organizations can persist indefinitely and thus contribute directly to subsequent generations. The relative fitness of one organizational population as compared to another is thus a composite of their respective rates of founding, merger, disbanding and change. Organizational ecologists have typically pursued a strategy of modeling these rates separately rather than combining them into an overall index of fitness (Hannan and Freeman 1989, 143).
7. Although the focus here is on evolution occurring at the organizational level of analysis, I believe that the same framework could be used to explain the evolution of social units at lower levels of aggregation — e.g., social roles or organizational routines. For instance, the reformulation of legitimation discussed below could be used to move discussions of intraorganizational evolution beyond current concerns with the impact of managerial decisions on firm "efficiency" and "adaptiveness" (Burgelman and Mittman 1994), to consider both the embeddedness of organizational roles and routines in networks of social and symbolic interaction (Miner 1994) and the constructed and contested nature of the terrains on which they evolve. Thus, Hochschild's (1983) account of how airline supervisors use the "living room metaphor" to increase flight attendants' acceptance of work routines involving excessive emotional labor could be interpreted as an instance of niche construction in which a strategy of "frame amplification" is used by management in an attempt to increase the fitness of that routine within the firm. Resistance by flight attendants might be conceptualized as an attempt to create an alternative niche, with the conflict between the opposing routines and rhetorics resulting in a frame dispute. Taylor's (1994) analysis of the role that opposing discourses of "efficiency" and "the social firm" are playing in the restructuring of the Mondragon Cooperative system might be interpreted in similar terms. Finally, recent feminist discussions of how "gendered spaces" (Mehta 1996) operate to restrict women's sphere might be reconceptualized in terms of the differential reproduction of roles within an adaptive landscape. Specifically, men's greater access to resources in many instances allows them to use a patriarchal frame to shape the social topography and network boundaries in ways that favor their interests. Challenging patriarchy requires women to identify, legitimate and defend an alternative space with sufficient resources to allow them to redefine the larger landscape (e.g., see Campbell and The Women's Group of Xapuri 1996).
8. Concepts derived from the constructivist literature on technology — e.g., actor-network theory (Callon 1986; Latour 1983) — might also be helpful here, particularly in relation to questions involving human-environment interactions.

Acknowledgments

I would like to thank Brett Fairbairn, Murray Fulton and other members of the Centre for the Study of Co-operatives in Saskatoon, Saskatchewan, for their assistance in the early phases of writing this manuscript. I would also like to thank Thomas Dietz and several anonymous reviewers for their many helpful suggestions.

References

Amburgey, T. L., D. Kelly and W. P. Barnet. 1993. Resetting the clock: The dynamics of organizational change and failure. *Administrative Science Quarterly* 38, 51-73.

Baum, J. A. C. and R. J. House. 1990. Commentary: On the maturation and aging of organizational populations. In J. V. Singh (ed.), *Organizational Evolution: New Directions*, 129-142. London: Sage Publications.

Baum, J. A. C. and W. W. Powell. 1995. Cultivating an institutional ecology of organizations: Comment on Hannan, Carroll, Dundon, and Torres. *American Sociological Review* 60, 529-538.

Baum, J. A. C. and J. V. Singh. 1994. *Evolutionary Dynamics of Organizations*. New York: Oxford University Press.

Benford, R. D. 1993. Frame disputes within the nuclear disarmament movement. *Social Forces* 71(3), 677-701.

Berger, P. L. and T. Luckman. 1967. *The Social Construction of Reality*. New York: Doubleday and Company.

Bock, K. E. 1956. *The Acceptance of Histories: Toward a Perspective for Social Science*. Berkeley: University of California Press.

Bock, K. E. 1978. Theories of progress, development, evolution. In T. Bottomore and R. Nisbet (eds.), *A History of Sociological Analysis*, 39-79. New York: Basic Books, Inc.

Bourdieu, P. 1985. The social space and the genesis of groups. *Theory and Society* 14(6), 723-744.

Boyd, R. and P. J. Richerson. 1985. *Culture and the Evolutionary Process*. Chicago: University of Chicago Press.

Brown, R. H. 1990. Symbolic realism and the dualism of the human sciences: A rhetorical reformulation of the debate between positivism and romanticism. In H. W. Simons (ed.), *The Rhetorical Turn*, 320-340. Chicago: University of Chicago Press.

Buechler, S. M. 1993. Beyond resource mobilization? Emerging trends in social movement theory. *The Sociological Quarterly* 34(2), 217-235.

Burgelman, R. A. and B. S. Mittman. 1994. An intraorganizational ecological perspective on managerial risk behavior, performance, and survival: Individual, organizational, and environmental effects. In J. A. C. Baum and J. V. Singh (eds.), *Evolutionary Dynamics of Organizations*, 53-75. New York: Oxford University Press.

Burns, T. R. and T. Dietz. 1992. Cultural evolution: Social rule systems, selection and human agency. *International Sociology* 7(3), 259-283.

Callon, M. 1986. The sociology of an actor network: The case of the electric vehicle. In M. Callon, J. Law and A. Rip (eds.), *Mapping the Dynamics of Science and Technology*, 19-34. London: MacMillan.

Campbell, C. and The Women's Group of Xapuri. 1996. Out on the front lines but still struggling for voice: Women in the rubber tappers' defense of the forest in Xapuri, Acre, Brazil. In D. Rocheleau, B. Thomas-Slayter and E. Wangari (eds.), *Feminist Political Ecology: Global Issues and Local Experiences*, 27-61. New York: Routledge.

Campbell, D. T. 1965. Variation and selective retention in sociocultural evolution. In H. R. Barringer, G. I. Blanksten and R. W. Mack (eds.), *Social Change in Developing Areas: A Reinterpretation of Evolutionary Theory*, 19-48. Cambridge: Schenkman Publishing Company.

Carroll, G. R. 1984. Organizational ecology. *Annual Review of Sociology* 10, 71-93.

Carroll, G. R. and M. T. Hannan. 1989. On using institutional theory in studying organizational populations. Reply to Zucker. *American Sociological Review* 54, 545-548.

Carroll, G. R. and M. T. Hannan. 1995. *Organizations in Industry: Strategy, Structure and Selection*. New York: Oxford University Press.

Clemens, E. S. 1993. Organizational repertoires and institutional change: Women's groups and the transformation of U.S. politics, 1890-1920. *American Journal of Sociology* 98(4), 775-98.

Dally, G. 1991. The discursive construction of economic space: Logics of organization and disorganization. *Economy and Society* 20(1), 79-102.

Darwin, C. [1859] 1958. *The Origin of Species: By Means of Natural Selection or the Preservation of Favoured Races in the Struggle for Life*. New York: New American Library, Inc.

Delacroix, J. and H. Rao. 1994. Externalities and ecological theory: Unbundling density dependence. In J. A. C. Baum and J. V. Singh (eds.), *Evolutionary Dynamics of Organizations*, 255-267. New York: Oxford University Press.

Dietz, T. and T. R. Burns. 1992. Human agency and the evolutionary dynamics of culture. *Acta Sociologica* 35, 187-200.

Dietz, T., T. R. Burns and F. H. Buttel. 1990. Evolutionary theory in sociology: An examination of current thinking. *Sociological Forum* 4, 47-70.

DiMaggio, P. 1988. Interest and agency in institutional theory. In L. G. Zucker (ed.), *Institutional Patterns and Organizations: Culture and Environment*, 3-21. Cambridge, MA: Ballinger Publishing Company.

Donati, P. R. 1992. Political discourse analysis. In M. Diani and R. Eyerman (eds.), *Studying Collective Action*, 136-167. London: Sage Publications.

Edwards, R. C. 1979. *Contested Terrain: The Transformation of the Workplace in the Twentieth Century*. New York: Basic Books.

Emirbayer, M. and J. Goodwin. 1994. Network analysis, culture, and the problem of agency. *American Journal of Sociology* 99(6), 1411-54.

Emirbayer, M. and A. Mische. 1998. What is agency? *American Journal of Sociology* 103(4), 962-1023.

Fairbairn, B. 1989. *Building a Dream: The Co-operative Retailing System in Western Canada, 1928-88*. Saskatoon: Western Producer Prairie Books.

Ferree, M. M. and F. D. Miller. 1985. Mobilization and meaning: Toward an integration of social psychological and resource perspectives on social movements. *Sociological Inquiry* 55, 38-61.

Fischer, F. and C. Sirianni. 1984. *Critical Studies in Organization and Bureaucracy*. Philadelphia: Temple University Press.

Fombrun, C. J. 1988. Crafting an institutionally informed ecology of organizations. In G. R. Carroll (ed.), *Ecological Models of Organizations*, 223-239.Cambridge, MA: Ballinger Publishing Company.

Greenwood, D. 1984. *The Taming of Evolution: The Persistence of Nonevolutionary Views in the Study of Humans*. Ithaca: Cornell University Press.

Hannan, M. T. 1986. Uncertainty, diversity and organizational change. In N. J. Smelser and D. R. Gerstein (eds.), *Social and Behavioral Sciences: Discoveries Over Fifty Years*, 73-94. Washington, D.C.: National Academy Press.

Hannan, M. T. 1988. Organizational population dynamics and social change. *European Sociological Review* 4(2), 95-109.

Hannan, M. T. and G. R. Carroll. 1992. *Dynamics of Organizational Populations: Density, Competition, and Legitimation*. New York: Oxford University Press.

Hannan, M. T. and J. Freeman. 1977. The population ecology of organizations. *American Journal of Sociology* 82(5), 929-964.

Hannan, M. T. and J. Freeman. 1984. Structural inertia and organizational change. *American Sociological Review* 49, 149-64.

Hannan, M. T. and J. Freeman. 1986. Where do organizational forms come from? *Sociological Forum* 1(1), 50-72.

Hannan, M. T. and J. Freeman. 1989. *Organizational Ecology*. Cambridge, MA: Harvard University Press.

Haveman, H. A. 1993. Organizational size and change: Diversification in the savings and loan industry after deregulation. *Administrative Science Quarterly* 38, 20-50.

Hochschild, A. R. 1983. *The Managed Heart: Commercialization of Human Feeling*. Berkeley: The University of California Press.

Jacob, F. 1982. *The Possible and the Actual*. New York: Pantheon Books.

Jenkins, J. C. 1983. Resource mobilization theory and the study of social movements. *Annual Review of Sociology* 9, 527-553.

Jensen, U. J. and R. Harre. 1981. *The Philosophy of Evolution*. New York: St. Martins Press.

Kelly, D. and T. L. Amburgey. 1991. Organizational inertia and momentum: A dynamic model of strategic change. *Academy of Management Journal* 34(3), 591-612.

Kingsland, S. E. 1985. *Modeling Nature: Episodes in the History of Population Ecology*. Chicago: University of Chicago Press.

Klandermans, B. 1992. The Social construction of protest and multi-organizational fields. In A. D. Morris and C. M. Mueller (eds.), *Frontiers in Social Movement Theory*, 77-103. New Haven: Yale University Press.

Latour, B. 1983. Give me a laboratory and I will raise the world. In K. Knorr-Cetina and M. Mulkay (eds.), *Science Observed*, 141-170. London: Sage Publications.

Latour, B. 1987. *Science in Action*. Cambridge: Harvard University Press.

Lipset, S. M. 1968. *Agrarian Socialism: The Cooperative Commonwealth Federation in Saskatchewan*. Revised Edition. Berkeley: University of California Press.

Lovejoy, A. O. 1936. *The Great Chain of Being: A Study of the History of an Idea*. Cambridge, MA: Harvard University Press.

Lyman, S. M. 1990. *Civilization: Contents, Discontents, Malcontents, and Other Essays in Social Theory*. Fayetteville: The University of Arkansas Press.

Marrett, C. B. 1980. Influences on the rise of new organizations: The formation of women's medical societies. *Administrative Science Quarterly* 25, 185-199.

Mayr, E. 1976. *Evolution and the Diversity of Life*. Cambridge, MA: The Belknap Press of Harvard University Press.

McCarthy, J. D. and M. N. Zald. 1977. Resource mobilization and social movements: A partial theory. *American Journal of Sociology* 82(6), 1212-1241.

McLaughlin, P. 1992. The organizational ecology of cooperative purchasing associations in Saskatchewan Canada. Unpublished Dissertation.

McLaughlin, P. 1996. Resource mobilization and density dependence in cooperative purchasing associations in Saskatchewan, Canada. *Rural Sociology* 61(2), 326-48.

McLaughlin, P. 1998. Rethinking the agrarian question: The limitations of essentialism and the promise of evolutionism. *Human Ecology Review* 5(2), 25-39.

McLaughlin, P. and M. Khawaja. 2000. The organizational dynamics of the U.S. environmental movement: Legitimation, resource mobilization and political opportunity. *Rural Sociology* 65(3), 422-439.

Mehta, M. 1996. "Our lives are no different from that of our buffaloes": Agricultural change and gendered spaces in a central Himalayan valley. In D. Rocheleau, B. Thomas-Slayter and E. Wangari (eds.), *Feminist Political Ecology: Global Issues and Local Experiences*, 187-208. New York: Routledge.

Meyer, M. W. 1990. Notes from a skeptic: From organizational ecology to organizational evolution. In J. V. Singh (ed.), *Organizational Evolution: New Directions*, 298-314. London: Sage Publications.

Miner, A. S. 1994. Seeking adaptive advantage: Evolutionary theory and managerial action." In J. A. C. Baum and J. V. Singh (eds.), *Evolutionary Dynamics of Organizations*, New, 76-89. York: Oxford University Press.

Miner, A. S., T. L. Amburgey and T. M. Stearns. 1990. Interorganizational linkages and population dynamics: Buffering and transformational shields. *Administrative Science Quarterly* 35, 689-713.

Musolf, G. R. 1992. Structure, institutions, power: New directions within symbolic interactionism. *The Sociological Quarterly* 33(2), 171-189.

Nelson, R. R. and S. G. Winter. 1982. *An Evolutionary Theory of Economic Change*. Cambridge, MA: The Belknap Press of Harvard University Press.

Ostrom, E. 2000. Collective action and the evolution of social norms. *Journal of Economic Perspectives* 14(3), 137-158.

Perrow, C. 1986. *Complex Organizations: A Critical Essay*. New York: Random House.

Popper, K. R. 1972. *Objective Knowledge: Causes, Consequences and Alternatives*. St. Louis, MO: C.V. Mosby.

Reed, M. I. 1988. The problem of human agency in organizational analysis. *Organization Studies* 9(1), 33-46.

Ritzer, G. 1992. *Contemporary Sociological Theory*. New York: McGraw-Hill, Inc.

Roberts, C. W. 1997. *Text Analysis for the Social Sciences: Methods for Drawing Statistical Inferences from Texts and Transcripts*. Mahwah, NJ: Lawrence Erlbaum Associates, Publishers.

Rorty, R. 1991. *Objectivity, Relativism, and Truth*. New York: Cambridge University Press.

Rosa, E. 1998. Metatheoretical foundations for post-normal risk. *Journal of Risk Research* 1(1), 15-44.

Ruse, M. 1979. *The Darwinian Revolution*. Chicago: University of Chicago Press.

Scheiner, S. M. 1993. Genetics and the evolution of phenotypic plasticity. *Annual Review of Ecological Systems* 24, 35-68.

Scott, R. C. 1987. *Organizations: Rational, Natural, and Open Systems*, 2nd edition. Englewood Cliffs, NJ: Prentice-Hall Inc.

Simons, H. W. 1990. The rhetoric of inquiry as an intellectual movement. In H. W. Simons (ed.), *The Rhetorical Turn*, 1-31. Chicago: University of Chicago Press.

Singh, J. V. and C. J. Lumsden. 1990. Theory and research in organizational ecology. *Annual Review of Sociology* 16, 161-195.

Snow, D. A., E. B. Rochford, S. K. Worden and R. D. Benford. 1986. Frame alignment processes, micromobilization, and movement participation. *American Sociological Review* 51, 464-481.

Sober, E. 1980. Evolution, population thinking, and essentialism. *Philosophy of Science* 47, 350-83.

Stinchcombe, A. L. 1965. Social structure and organizations. In J. G. March (ed.), *Handbook of Organizations*, 142-93. Chicago: Rand-McNally.

Taylor, P. L. 1994. The rhetorical construction of efficiency: Restructuring and industrial democracy in Mondragon, Spain. *Sociological Forum* 9(3), 459-489.

Thomason, B. C. 1982. *Making Sense of Reification*. London: The Macmillan Press.

Thompson, J. D. 1967. *Organizations in Action*. New York: McGraw-Hill.

Tilly, C. 1978. *From Mobilization to Revolution*. New York: Random House.

Toulmin, S. 1981. Evolution, adaptation, and human understanding. In M. B. Brewer and B. E. Collins (eds.), *Scientific Inquiry and the Social Sciences*, 18-76. Washington: Jossey-Bass Publications.

Van de Ven, A. H. and R. Garud. 1989. A framework for understanding the emergence of new industries. *Research on Technological Innovation, Management and Policy* 4, 195-225.

Weber, M. 1946. *From Max Weber: Essays in Sociology*. Translated, edited, and with an introduction by H. H. Gerth and C. Wright Mills. New York: Oxford University Press.

West, P. C. 1985. Max Weber's human ecology of historical societies. In V. Murvar (ed.), *Theory of Liberty, Legitimacy and Power: New Directions in the Intellectual and Scientific Legacy of Max Weber*, 216-234. Boston: Routledge and Kegan Paul.

Winter, S. 1990. Survival, selection, and inheritance in evolutionary theories of organization. In J. V. Singh (ed.), *Organizational Evolution: New Directions*, 269-297. London: Sage Publications.

Woolgar, S. 1988. *Science: The Very Idea*. London: Tavistock Publications Limited.

Zucker, L. G. 1989. Combining institutional theory and population ecology: No legitimacy, no history. *American Sociological Review* 54, 542-48.

Public Participation in Watershed Management Planning: Views on Process from People in the Field

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Abstract

Watershed planning is an important focus of environmental protection efforts in many states. Still, how to involve the public in watershed planning remains controversial. This paper reports on research that used Q methodology to study how experienced watershed management planners and activists perceive the proper way to involve the public in decision-making. Four perspectives about how best to involve the public in watershed planning emerged. One emphasizes that a good process is credible and legitimate and that it maintains popular acceptance for outcomes. A second sees a good process as one that produces technically competent outcomes. A third focuses on the fairness of the process. A fourth perspective pays attention to educating people and promoting constructive discourse. Differences among these views suggest an important challenge for those responsible for designing and carrying out public participation processes. Conflicts may emerge about process designs because people disagree about what is appropriate in specific contexts.

Keywords: *public participation, Q methodology, watershed planning*

Introduction

Policy makers and stakeholders widely accept that members of the public should be involved in environmental planning, such as watershed planning (Creighton, Delli Priscoli and Dunning 1998; National Research Council 1996; Fiorino 1990; Woolley, McGinnis and Herms 1998; Nature 2000; Wondolleck and Yaffee 2000). Just how to involve them, however, remains controversial. Researchers and practitioners have searched for principles that characterize "good" public participation processes. It is a persistent issue for researchers in Human Ecology.[1] Much of the literature seems to assume that principles of good public participation are universally accepted and not contentious. Who would disagree that a good process should be, for example, fair and competent (Renn, Webler and Wiedemann 1995)? Despite their widespread appeal, fairness and competence may not be the only features of a participatory process that matter to people. Participants and planners often disagree about what constitutes a good process. In other words, there may be no single definition of a good process, either in the abstract or in context-specific cases. Conflicts about how to best "do" public participation create significant design obstacles for those entrusted with decision-making authority in environmental policy arenas.

In this paper, we report the results from our inquiry about how active and experienced people in watershed planning think about the public's role in producing a watershed management action plan. We used Q methodology to learn participants' views. Four perspectives about good process emerged. Differences among these perspectives highlight different principles important in public participation processes. The results illustrate how people can disagree about the best ways to conduct a participatory watershed planning process. These disagreements have important implications for the ways that planners can go about designing "good" processes.

A Review of Public Participation Theories and Approaches

"Public participation" means many things to many people. In the past, the term was often used to refer to opportunities for providing comments at public hearings, voting in referenda, or being a member of a social movement. More recently, "public participation" refers to a variety of proce-

dures for enabling diverse members of the public to be active participants in deliberations about preferred policy options, and in some cases decision-making. Procedures are used that allow members of the public to have voice and influence. An evolution away from technocratic-based environmental and risk decision-making has emerged during the last twenty years, as the belief grows stronger that many policy initiatives fail when they follow 'top-down' or technocratic approaches that attempt to separate assessment of technical information from discussion of values and policy (National Research Council 1983). Pressures arise from publics' demands to be included in more open, transparent processes, and from government agencies seeking legitimacy and credibility. These pressures have occurred simultaneously with increased calls generally for 'civic discourse' and openness in government (Gutman and Thompson 1996).

These are reasons that address *why* public participation in environmental and risk decision-making should occur. They are forcing decision-makers to experiment with various approaches to policy planning based on democratic principles: the question of "how." The "social experiments" include, for example, the use of advisory boards, water quality councils, informal roundtables, and "living room" meetings. They have been implemented in a variety of policy domains, ranging from the cleanup of nuclear weapons facilities to ecosystem management, species and habitat restoration, and the siting of hazardous facilities.

Knowledge from practitioners, lay people, and university participant-observers has accumulated from these "social experiments." Research and practitioner oriented literatures are rapidly growing with a variety of suggested procedures, guidelines and evaluation criteria (Chess and Purcell 1999; Creighton, Delli Priscoli and Dunning 1998; Kasperson 1986; Webler 1997; Wondolleck and Yaffee 2000; Rowe and Frewer 2000; Carnes et al., 1998; McDaniels, Gregory and Fields 1999; Daniels and Walker 1996). At the same time, there has been growing attention to conceptual approaches for understanding "best practices" for public participation (Dietz and Stern 1998; Chess, Dietz and Shannon 1998; National Research Council 1996; Shindler and Creek 1997; Webler 1995).

For example, a stream of conceptual thought in the public participation literature concerns issues of fairness, or procedural justice. Procedural justice is considered an important element in people's satisfaction with decisions, perceptions of fairness, and support for authorities (Lind and Tyler 1988; Thibaut and Walker 1978). A variety of criteria have been proposed, including use of accurate information, representativeness, participation in decision-making, and suppression of bias. Researchers have also concerned themselves with relationships between procedural justice, distributive justice, support for outcomes, trust, and other variables (Brockner and Siegel 1996). The role of how people perceive the procedural fairness of public participation processes and environmental decision-making forms a growing body of empirical research (Lauber and Knuth 1997; Smith and McDonough 2001; Renn, Webler and Kastenholz 1996).

Political theories of democracy have also been used to identify fundamental principles for public participation. This is represented by an earlier conceptual piece by Nelson Rosenbaum (1978) as well as the more recent work of Daniel Fiorino (1990) and Frank Laird (1993) — both of who derived criteria from democratic theory and used these to evaluate generic techniques of participation. Fiorino based his principles on a conception of participatory democracy, while Laird added a parallel analysis based on liberal democratic theory.

In 1996, a committee of the National Research Council tackled the question of how to advise federal agencies to do public participation (although it was initially asked to address a different question). The approach developed by the committee was innovative. The report, *Understanding Risk: Informing Decisions in a Democratic Society* (National Research Council 1996), developed the concepts of analysis and deliberation and constructed a model of participatory decision-making that sought to integrate the need for lay and expert knowledge to inform a deliberative, adaptive, and iterative policy-making process. Several scholars have taken interest in the analytic-deliberative approach (Apostolakis and Pickett 1998; Dietz and Stern 1998; Jasanoff 1996; Webler and Tuler 1999; Chess, Dietz and Shannon 1998; Bradbury 1998; Stern 1998). Two recent National Research Council reports advocated more use of the analytic-deliberative approach in issues of biodiversity (NRC 1999a) and watershed planning (NRC 1999b). However, there has been little development of the central ideas of this approach and no attempt to link it to other theoretical understandings of public participation.

Another stream of theoretical work relevant to the field of public participation began with Jürgen Habermas's theory of universal pragmatics (1979) and his theory of communicative action (1984, 1987). The work of Ortwin Renn (1992); Thomas Dietz (1987); Judith Innes (1998); John Forester (1993); Ray Kemp (1985); and Frank Fischer (1985) fall into this category. In this vein, a theory of fair and competent citizen participation has been advanced by Thomas Webler (1995, Webler and Tuler 2000). The theory proposes a definition of "good" or "right" public participation. That is, it proposes a normative theory of public participation in western developed democracies. Following Habermas, Webler used the concepts of validity claims and their corresponding modes of discourse together with the ideal speech situation

and communicative competence to reason out criteria of a fair and competent public participation process (Webler 1995, 81-86). A key distinction was that Habermas defined competence in terms of individual capabilities while Webler defined competence in a procedural sense — that is, the use of the best available techniques for resolving validity claim disputes (which are disputes about correctness, appropriateness, and truthfulness of assertions). This theory has been invoked to evaluate models of environmental decision-making (Renn, Webler, and Wiedemann 1995). The theory was used more recently by Coenen, Huitema, and O'Toole (1998) and Rowe and Frewer (2000).

Closely associated with the theoretical literature on public participation is a large literature on evaluating public participation processes (Bradbury and Branch 1999; Carnes et al. 1998; Chess and Purcell 1999; Rowe and Frewer 2000; Shindler and Creek 1997). This literature occasionally draws on theoretical literatures, but more often it is empirical. Its purpose is to create criteria and measurable indicators to evaluate the design or performance of participation processes.

Judith Bradbury, Kristi Branch, and their colleagues have been making progress toward a theory of public participation through empirical evaluation research of chemical and nuclear weapons policy issues (Bradbury et al. 1994, Bradbury and Branch 1999). In their studies of chemical weapons disposal they discovered that public acceptance of policy rested on four central criteria, which they suggest a public participation process should endeavor to meet: (1) technical competence, (2) fair decision process, (3) accountability of decision-makers, and (4) trust and caring relationship between agency and publics. In their studies of DOE site-specific advisory boards they identified six factors that contribute to effective processes: community context; board composition; purpose, goals, and commitment to consensus; internal process and functions; public engagement; and DOE and regulator engagement.

In a recent effort to explore the universality of principles for good participation, we studied a forest planning process (Tuler and Webler 1999, Webler and Tuler 2000, Webler, Tuler and Krueger 2001). We found five competing social discourses about "good" policy processes (Webler, Tuler and Krueger 2001). Discourses are shared, structured ways of speaking, thinking, interpreting, and representing things in the world, and they can have different degrees of stability. Though there is a growing effort to study discourses about environmental and risk issues (Dryzek 1997; Gamson 1989; Satterfield 1996), much less attention has been given to different discourses about *process*. One perspective emphasized that a good process acquires and maintains popular legitimacy through a consensual democratic process. A second saw a good process as one that facilitates an ideological discussion among a core of stakeholders. A third focused on the fairness of the process, paying special attention to creating high quality democratic deliberation and to achieving participation by all segments of society. A fourth perspective conceptualized participatory processes as a power struggle. The fifth perspective highlighted the need for leadership and compromise in combination with collecting insights and fostering deliberation among a wide range of the public. A primary insight from this study for theorists of public participation is that it is inappropriate to expect that criteria will be universally held. Many theories implicitly or explicitly assume such universality (e.g., Webler 1995). Another interesting result is that different participants chose to emphasize different normative aspects of the process. Some focused on illegitimate relations of power, some on the role of experts, others focused on how outreach efforts were conducted. The study reported here continues this line of inquiry in a different policy area using similar methods.

Methods

During a workshop for watershed planners and activists from across Massachusetts, twenty-one individuals completed a Q sort exercise. The sort occurred just after the individuals completed a constructivist educational module that encouraged the attendees to contemplate and critique different scenarios for involving the public in watershed planning. People reported that they enjoyed doing it. They mentioned that it was innovative, fun, moderately difficult, and that it stimulated their thinking.

Q method is especially suitable for this type of analysis. It allows a respondent to express his or her own point of view and preserves subjectively determined meanings during the statistical analysis (Brown 1986; McKeown and Thomas 1988; Stephenson 1953). Unlike survey methods that ask a respondent to express a view on isolated statements, in a Q study individuals react to statements in the context of all statements included in the study as each statement is ranked in relation to the others. An "inverted" factor analysis is used to identify patterns of relationships among statements and across the individuals who participated in the study. The analysis maintains an individual's responses as a whole rather than dismembering his or her responses according to various traits. The researchers interpret factors to represent underlying perspectives within the social discourse. The approach has been around for over fifty years and its use in policy and planning literature is expanding (Brown 1986; Dryzek 1996; Focht and Lawler 2000; Woolley, McGinnis and Herms 1998; Kalof 1998, 2000; Pelletier et al. 1999; Webler, Tuler and Krueger 2001).

Statements for a Q study are constructed by the researcher, lifted from publications, or extracted from interviews. For this study, we took statements that were used in a previous project on public participation in forest policy making (Webler, Tuler and Krueger 2001). The statements were edited to ensure they were appropriate to this context.[2] It is essential that the statements represent the full *breadth* of opinions associated with the topic. At the same time, people can be expected to sort only 4-5 dozen statements. Therefore, each statement has to be chosen carefully.

The research literature on public participation clearly demonstrates that context matters to how people define a "good" process. The purpose of this study was to test how multiple perspectives can exist in regard to a single process rather than to test how perspectives vary across different contexts (although this is also an area in which additional research would be of benefit). Thus, a hypothetical watershed planning case was used to frame the context of the Q sorting exercise. A Watershed Community Council (WCC) that was legally charged with the responsibility of producing a watershed management action plan was described (Table 1). The condition of instruction was:

> *Imagine that you are designing a public participation process for the watershed described in the case description. Sort the statements according to what you believe should be the most important to least important ideas guiding the design of the process.*

MQMethod program was used to analyze the data.[3] To obtain factors we used centroid extraction with judgmental rotation. Any factor analysis requires a certain amount of judgment in determining the relevant factors. Factors were selected based on four criteria: (a) explanatory value was > 7%, (b) at least two subjects loaded significantly, (c) the factor was theoretically important, and (d) inter-factor correlations were less than 0.5.[4]

To validate the interpretation of factors six individuals who loaded highly on different factors were consulted. They reviewed narrative descriptions of each factor and they commented on the overall meaning and subtle wording in the narratives. Based on their comments we made small changes to the factor narratives, which are presented in the next section. Overall, people felt strongly that the narratives were satisfactory descriptions of their thinking about this issue.

Table 1. Hypothetical case description for the Beane River Basin.

Physical characteristics:
- Drainage area: 602 square miles
- River length (in Massachusetts): 37 miles
- Tributaries: 4
- Acres of ponds, lakes, and reservoirs: 3540
- Hydrofacilities and dams: 4
- State ownership: 15%, 3 large contiguous state forests, 2 state parks

Demographics:
- Number of towns and cities in watershed: 20
- Total year-round population: 159,000
- Three cities have populations greater than 40,000
- Summer population increases by 35,000
- The watershed cuts across the cusp of a larger metropolitan area. Two of the larger cities are suburbs of the metropolitan area. One of these cities is economically depressed and has a Laotian immigrant community.

Economic:
- Median income: $26,000
- History of manufacturing industries, but importance declining
- Employment by economic sector:

agriculture (crops and livestock)	2%
education (1 community college and 1 4-year college)	5%
government	10%
forest products industry, including 2 mills	12%
tourism (3 seasons; summer, fall, winter)	8%
non-tourist service	22%
self-employed	18%
manufacturing	7%
other	16%

Social:
- Growing conflicts in some towns between full-time residents and second home-owners (e.g., taxes, services, congestion, land use practices).
- Participation rates at town meetings and volunteer civic activities have been declining significantly for the last 6 years.
- There is little knowledge or appreciation for the environmental problems in the watershed. There is high concern about social problems.
- There are numerous organizations and groups, including a watershed protection group. Many environmental groups are represented at the college campus.

Ecology:

Endangered species: 3 MA listing, 1 Federal listing
- One endangered flowering plant that grows in habitat along one of the tributaries. It is endangered by agricultural practices along a few miles of the tributaries.
- Two amphibians are endangered as a result of water pollution in ponds from faulty septic systems from poor second home construction.
- Depleted native fish stocks in rivers and many ponds and lakes are common due to water pollution, overfishing, and dams.

Results

Four factors were identified in the Q analysis. Table 2 presents the statements and their scores for each factor. A factor corresponds to a particular arrangement of the statements on the Q sort board. The numbers from "+5" to "-5" represent the placement of each statement on the board, where "+5" means most important and "-5" means least important. The loading scores presented in Table 3 represent loading coefficients that depict how closely an individual's sort matched each of the factors (where +100 means complete agreement and -100 means complete disagreement).

Table 2. Q statements and factor arrays.

Statements	Factors			
The process should...	*A*	*B*	*C*	*D*
1 Allow people to talk with one another	1	-4	0	2
2 Attempt to build trust and respect among the different participants.	0	0	2	2
3 Be consistent in how information is evaluated.	-2	3	1	1
4 Be cost efficient.	-2	-2	-3	0
5 Be designed so that all groups and individuals have equal status regardless of how affected they believe they are.	2	-4	-1	-1
6 Be designed so that if someone makes a compelling case for something it should change the course of the outcome.	-4	0	5	-2
7 Be totally open at every single step.	4	-3	4	-4
8 Build credibility for the Watershed Community Council.	4	-4	-1	-2
9 Defuse future conflict which might prohibit future planning processes.	-2	-2	-1	-4
10 Develop a spirit of cooperation.	3	-1	3	1
11 Educate people about the range of issues confronting the watershed.	5	4	2	3
12 Enable citizens to feel they are part of the project.	2	1	3	1
13 Enable long-term collaboration.	4	0	-2	-2
14 Encourage participants to speak in professional, friendly, and courteous ways.	-3	-1	2	-1
15 Engage participants with information so that they make more informed decisions.	2	5	0	4
16 Ensure that all of the different view points are represented in the process.	0	4	5	0
17 Ensure that all points of view have an equal opportunity to be expressed.	0	3	4	2
18 Ensure that every decision made in the process is justified with evidence.	-5	5	0	-1
19 Ensure that everyone involved has an equal chance to put his/her concerns on the agenda.	-3	2	5	2
20 Ensure that local knowledge used in decision-making is critically evaluated.	0	0	2	0
21 Ensure that opportunity isn't an empty shell; there need to be opportunities to be heard but there also has to be some way for the public to see that the decision-makers are listening.	0	3	-2	4
22 Ensure that there is peer review of expert knowledge used to make decisions.	-2	-2	-5	0
23 Give land owners special representation.	-5	-5	-5	-5
24 Guarantee full disclosure of information at all times.	-1	-1	3	-5
25 Have a clear plan for public involvement.	-1	2	3	4
26 Have meetings at times and locations convenient for working people.	2	1	2	3
27 Have skilled facilitators to keep a constant flow and to keep things on center.	-1	1	-1	1
28 Have strictly enforced rules about what are acceptable behaviors at meetings.	-5	-2	0	-5
29 Involve as many members of the general public as possible in all stages of the process.	-1	2	4	-3
30 Involve mainly stakeholders and scientists in defining the problems and designing action plans.	0	-1	-4	-4
31 Involve the publics in deciding what technical information should be gathered and how it should be gathered.	-1	-3	-4	-3
32 Leave people with a better understanding of each other's languages, approaches, viewpoints, and so forth.	-2	-4	-2	3
33 Limit topics that can be discussed to avoid quagmires.	-4	-5	-4	-1
34 Not tilt toward any one interest group.	2	0	-2	0
35 Overcome apathy by educating the general public about the problem.	1	-3	-4	-2
36 Produce an action plan that is politically feasible.	1	1	0	-1
37 Produce an action plan that is technically competent.	3	5	1	-3
38 Promote a constructive discussion about the problem.	0	0	1	5
39 Promote a regional awareness and a regional sense of place.	5	-3	-1	1
40 Reach out in a number of different ways through different mechanisms to different communities on different issue points throughout the process.	1	4	-3	5
41 Rely mainly on consensus to make important decisions.	-1	-1	-5	0
42 See the problem through the eyes of the public before drafting action plans.	3	0	0	0
43 Seek approval from the publics for its action plan.	3	4	-2	-1
44 Seek out and value expert/scientific knowledge.	1	3	-3	3
45 Seek out and value local knowledge and experiences.	5	2	0	5
46 Select Watershed Community Council members partly on the basis of their personalities and willingness to work with others.	-3	-2	-4	-2
47 Set up a situation that encourages people to listen and reflect on what they hear.	1	1	1	4
48 Stick to the timetable and produce the goods on time.	-4	-1	1	1
49 Strengthen democracy and rebuild people's faith in government.	-3	-5	1	-4
50 Substantiate its assumptions.	-4	1	-2	-3
51 Treat the publics with respect.	4	2	4	2

Table 3. Reordered factor matrix.

Factors / Name	A	B	C	D
Factor A				
Wigham	**.62**	.60	-.90	**.61**
Stacy	**.61**	.80	.30	.27
Clinton	**.61**	-.70	.25	.80
Faurague	**.48**	.80	.40	.37
Listof	**.48**	.00	.10	.36
Jannson	**.46**	.16	.15	.80
Hughes	**.43**	.80	.50	.14
Factor B				
Pickels	.15	**.67**	.40	.20
Sontag	.13	**.67**	.14	.31
Austin	-.40	**.48**	.10	-.10
Reno	-.28	**.47**	.38	.38
Minau	.22	**.49**	.26	.21
Factor C				
Kinsey	.50	.18	**.62**	.00
Garcia	.21	.70	**.48**	.16
Vaughan	.41	.16	**.42**	.30
Factor D				
Smith	.15	.26	.19	**.59**
Christianson	.18	.50	.14	**.52**
McGough	.32	.39	.10	**.46**
West	.90	.20	-.80	**.45**
Moore	.21	.11	.12	**.45**
Non-loaders				
Stern	.29	.21	.15	.29

All highlighted numbers are significant at $p < 0.001$, two-tailed, critical value = 0.429.

The names listed in Table 3 are pseudonyms. As the reordered factor matrix in Table 3 shows, only one person did not load significantly on any factor. Only one person loaded on more than one factor. This is a very clean factor matrix which suggests that people had well-formed and distinct opinions about how the public should be involved in watershed planning. Now we turn to a description of each perspective. In the descriptions, the numbered statements from Table 2 appear as numbers in parentheses.

Factor A: A good process is credible and legitimate

At the heart of this perspective lies a deep concern for ensuring the process is widely seen as credible and legitimate (8).[5] Policies are more implementable if they are popularly accepted and only a credible and legitimate process can acquire this level of support. In this perspective, a credible and legitimate process validates itself through process features such as being respectful to the publics (51) and open at every step (7). It shows respect and an authentic willingness to learn from the public by seeking out and valuing local knowledge and experiences (45). And, the WCC should see the problem through the eyes of the public before drafting the action plan (42) and it should not be biased toward any one group (5). This may take time and effort, and the process should be flexible enough to meet these needs even if it means abandoning the original timetable (48). Finally, the WCC should seek public approval for the final action plan (43) before it moves into the implementation stage.

In addition to these process design features, a good process acquires public support for watershed planning through education and outreach. Of foremost importance is that people have an awareness of the watershed, its problems, and the policies being implemented (11). Watershed planning is greatly furthered when publics have a sense of awareness of the watershed (39) and a good process takes care to establish this perception. According to this perspective, these are two important ends that a good process should strive to achieve.

An appropriate process is also one in which the official decision-making authority does not shirk from its obligations. It is important to elicit public input, but it would be irresponsible for the WCC to turn over the decision to the parties who are participating in the process. In other words, decision-makers should not give up control over the agenda (19). Decision-making requires a good degree of judgment and discretion. Consequently, decision-makers must reach beyond the immediacy of the process in order to make decisions that are socially and environmentally responsible for the long-term. Compelling arguments from the public, for example, only oblige the decision-makers to consider the speaker's point, not to react with specific decisions (6). Moreover, it is not wise to require that every decision be justified with evidence (18) or that every assumption be substantiated (50). As one participant who loaded high on this factor remarked, "Lack of data should not delay action on very important problems."[6] Sometimes, when the problems are serious enough it is necessary to take action even though data are not conclusive. Clearly, decisions cannot merely be information-driven. They must involve a great amount of judgment and consideration.

Factor B: A good process is competent and information-driven

From this perspective, the role of quality information in the process is central. The focus is on producing an action plan that is technically competent (37). For this to happen, not only does every decision need to be justified with evidence (18), but also the process needs to engage its participants with information so that people are making better decisions (15). This necessarily involves educating people about the watershed and its problems (11). One way that a good process engages people is by seeking out local knowledge (45). Of course, scientific knowledge is also sought out (44)

and all information brought into consideration is evaluated in consistent ways (3). Substantiating assumptions is also considered important; it was ranked higher on this factor than any other (50).

Information cannot by itself, however, drive a decision. Information needs to be interpreted by people. Competent decisions are aided by democratic and fair processes. Thus, it is critical for all people to have a fair and just opportunity to participate and be heard (16, 17, 21, 19) and for the public to endorse the final action plan (43). For all these reasons there needs to be a clear plan for doing public participation (25) which includes a substantial outreach effort (40) that involves as many people as possible (29).

According to this perspective, the WCC needs to pay utmost attention to how the publics inform and communicate with the watershed planning project. Of lesser importance is the communication that goes on among participants (1), the consequences the experience has for people's understandings of each other (32), or the effects that this process has on macro issues such as reinforcing values of civil society (49). This factor differs strongly from Factor A in its de-emphasis on public acceptability, as illustrated by its low rankings for the credibility for the WCC (8) and promoting regional awareness of the watershed (39). Instead, the emphasis is on producing an action plan that is justified by evidence (18), something Factor A ranked as least important.

Factor C: A good process fosters fair democratic deliberation.

The two previous perspectives emphasized process legitimacy and competence. Factor C emphasizes the theme of fair democratic deliberation. According to this view, fair democratic deliberation is related to issues of power and equity in the process. These issues are reflected in three of the most highly ranked statements on this factor (16, 19, 6). Accordingly, giving people representation in the process (16), influence in agenda-setting (19), and influence over outcomes (6) are all key to understanding the meaning of equal power in this perspective.

As with the first perspective, the publics' sense that they feel part of the project matters (12). However, the reason for why this matters could not be more different. In Factor A, the motivation for including the public was strategic — to gain legitimacy so that policies will be implementable. Here, participation should be meaningful because it is morally right to give people affected by decisions a chance to participate in shaping them. The publics should be involved in the process (29), not just stakeholders (30).

In contrast to Factor B, the role of information and evidence in the process is not emphasized (44, 45, 50). It is striking to see that this factor gave the lowest ranking to the idea of having peer review of expert knowledge drive decisions (22). This reflects the intersection of two beliefs: a resistance toward the idea of an elitist process and a de-emphasis of the role information should play in the process.

According to this perspective, discussions that take place inside the process are not primarily about information or scientific reports. People are engaging in democratic deliberation and strengthening democratic values (49).[7] Toward this end, relating in a civil manner is important (51,14). Openness is essential for this kind of talk to prosper. Therefore, the process must be open at every single step (7) and it must fully disclose all information at all times (24).

Despite the endorsement of a democratic approach this perspective does not believe in turning the process over to the public will. There is a strong resistance to relying on consensus in decision-making (41) and to letting the publics participate in defining what technical information is gathered (31). Still, a compelling case made by someone should change the course of the outcome (6). This represents a realistic view of how the public should be involved in watershed planning. Supporters of this perspective know that consensus can become an excuse for stalling. They clearly differentiate the roles of the experts and the publics in the process. Still, they argue that outcomes should be rational and based on the best argumentation available.

Factor D: A good process emphasizes constructive dialogue and education

More than any other, this perspective highlights the need for decision-makers to pay attention to educating people and creating constructive dialogue (38, 15, 11). Outreach is of primary importance (40, 45). Interestingly, the number of participants is a poor indicator for these conditions (29). In other words, the goal of the outreach is to involve people who really can participate meaningfully and constructively (38), not to merely create large turnouts.

In the public participation process envisioned by this perspective, the WCC listens and reflects on what is said (47). Creating opportunities for people to speak is not enough; they need to be heard by the decision-makers (21). Yet, the decision-making power clearly resides with the WCC and not the public according to this view. As with Factor A, promoting quality interaction should not undermine the authority of the decision-makers. The decision-making body is presumed to retain responsibility and authority for the final outcomes. Unlike factor C, just because someone makes a compelling case for something the WCC is not obliged to adopt it into the action plan (6). Furthermore, the final action plan should not focus only on being technically competent (37) or having substantiated assumptions (50). Both of these items point to the need for leadership to be free to exercise

judgment in decision-making under uncertainty. Leaders should not rely on public approval for the action plan (43).

This is a perspective that visualizes an enlightened leadership that does its best to draw people into an informed constructive dialogue. It engages participants with information (15), although the focus here is clearly on more than just information. A quality experience is one in which talk is rich with local knowledge and experiences (45) and people talk with one another directly (1). Skilled facilitators can be useful to move things along (27). The goal is a constructive discussion (38) which leaves people with better understandings of each other's viewpoints and about issues (32, 11) and which builds trust and respect among the participants (2).

WCC decision-makers should focus on creating a rich dialogue and not be dragged down by pie-in-the-sky goals like fostering long-term collaboration (13), avoiding long-term conflict (9), or strengthening civil society (49). While these are not necessarily unimportant, they are simply less important than fostering a learning, reflective deliberative process.

According to this view, decision-makers have a responsibility to listen to the public and take their concerns into consideration. However, they ought not turn over responsibility to those people who participate. Guaranteeing full disclosure of information (24) or having a process open at every step (7) is not consistent with this goal. Furthermore, if the quality of the interaction is excellent and the decision-makers are listening then there would no need for the public to confirm that the decision-makers have acted appropriately (43). It is also interesting to note that having strictly enforced ground rules for behavior is not seen as the appropriate way to realize the important principle of quality talk (28).

Consensus Items

We found consensus on several of the statements across all factors. That landowners should *not* receive any special representation in watershed management processes (23) was strongly emphasized in all four factors. This violated some peoples' democratic principles of equity and was viewed as a threat to the policy-making process. The idea that publics should be involved in deciding what technical information to be gathered (31) was ranked low in each of the factors. Paradoxically, involving lay publics in designing the parameters and direction for technical studies is strongly advocated by the National Research Council in their recent report on America's watersheds (National Research Council 1999b). Another point of consensus across factors was a low ranking for the suggestion that WCC members be selected in part on the basis of their personalities and willingness to work with others (46). The people who participated in this research felt that the process has to be able to accommodate all types of people. Those implementing the process should not be selective about who participates. Finally, the lack of enthusiasm for consensual based decision-making is worth noting (41). Many public participation theorists and practitioners endorse consensus because it is assumed to protect all interests equally. This population, however, focused more on the possibility that consensus would be misused for strategic ends at the expense of protecting the environment.

Implications for Practice

This study relied on participants that were watershed planners and activists in Massachusetts. Missing are the points of view from many other stakeholders whose participation in watershed planning matters. Thus, caution is necessary lest the results be over-interpreted. For example, we expect that individuals with strong opinions about the protection of private property rights will have a different view about what constitutes a good process. Similarly, other stakeholders might believe that consensus is important in order to overcome the possibility that decisions will be contested in court. However, this study does capture perspectives from a wide variety of individuals who are normally *leading* watershed protection efforts in Massachusetts. The views of these people are important to consider when designing a participatory planning process.

What should organizers and participants of watershed planning processes take from these results? First, experienced and knowledgeable people in watershed planning have different expectations about what a public participation process should look like and what it should achieve. Clearly, different people highlight different attributes of a public participation process. For some, the process's legitimacy and ability to implement the plan it produces were paramount. Others focused their attention on the role information plays in informing the discussion and driving the outcomes. A third group concentrated more on issues of fairness and equity. They were aware that different people wield different amounts of power and influence and that these amounts are not always compatible with the degree of affectedness. Finally, some people felt that it was most important to consider the quality of the deliberative experience.

Second, the differences among these perspectives may reflect differences in deeply held values. For example, the motivation for including the public was a strategy to gain legitimacy for the implementation of policies in Factor A. If public involvement becomes a hindrance to gaining legitimacy, then involving the public may not continue to be a priority for those holding this perspective. However, in Factor C participation was viewed as a moral right because people affected by decisions should have a chance to shape them.

The need for the public to be involved arises from a different set of values about democracy. Similarly strong, and potentially contentious, differences arise in regard to the role of information and evidence in the process and the importance of creating an informed public (through education and outreach). However, it is important to note that not every difference may be deep or irreconcilable.

Thus, our third point is that organizers of public participation processes should strive to understand the differences and what underlies them. While some differences may pose difficult challenges planners should strive to meet them. They should seek to implement processes that are credible and legitimate while also being technically competent, democratically fair, and experientially pleasing and efficacious. Planners should not sacrifice one goal for another. If compromises are not possible because irresolvable differences do exist, planners should know why and carefully consider the implications of alternative process designs. The literature on public participation suggests that a good process is adaptive and responsive to the will of its participants. Planners should take the time to inquire about what participants want the process to achieve or manifest. They should not rely on assumptions about what they think that participants want. For example, while we found consensus against consensus this belief might not be held in all cases.

Conclusions

A persistent problem for planners and activists involved in watershed planning is how to construct a process that meets the needs and goals of planners, affected stakeholders, and the general public while producing implementable and effective policy outcomes in a cost efficient manner. Recent literature is full of advice for how to conduct a participatory policy making process in environmental planning contexts. Without challenging this advice, we suggest that conflicts can emerge about the goals of a participatory planning process. Our findings indicate that some may reflect differences in deeply held beliefs and values. Moreover, the differences can be used strategically (e.g., to disempower other participants or raise questions about the legitimacy of a process that promotes undesirable outcomes). If the conflicts over process go unaddressed (e.g., about lack of adequate opportunities to participate and the role of technical information in decision-making) they can exacerbate existing tensions.

Some of the research and evaluation literature on public participation focuses on identifying models or techniques for public participation and evaluating how well these techniques work for different decision arenas. This refers to the question of how best to match method with purpose. The results from this study suggest that the answer to this question will be complicated by the existence of multiple perspectives about "good" process within a particular decision-making arena. Chess and Purcell (1999) argue, moreover, that methods (e.g., use of advisory boards, public hearings) are frequently adapted and that the way a method is applied may have a substantial, even determining effect on the performance of the process. Planners, then, have both challenges and opportunities as they seek to meet the needs of participants with different views about "good" process and as they seek to design a process that meets shared needs.

An important question is the degree to which our results in this study are dependent on the context of the watershed planning process or are universally held. We asked people to base their replies as if they were designing a process for the hypothetical watershed outlined in Table 1. A cursory comparison of the results of this study with the earlier study of forest planning suggests some important similarities and differences among the discourses about process. A more systematic comparison of the discourses is beyond the scope of this article. These two studies provide useful fodder for generating hypotheses for further work on developing theory of public participation. For example, our understanding of public participation will be furthered by more research that uncovers perspectives about process both *within* specific policy domains and *across* policy domains. The ways that contextual features of a decision arena are related to beliefs about process is also an important need for future research.

Endnotes

1. For example, the *Human Ecology Review* has been a forum for articles about public participation in a variety of policy arenas. A 1998 Forum on public participation in environmental decision-making highlights many of the complexities of defining "good" process (see, for example, Raffensperger 1998, Bradbury 1998, Chess et al. 1998, Pritikin 1998, Stern 1998, Webler 1998).
2. In the forest project statements were extracted from interviews with participants of the policy making process.
3. This program is available on the web at http://www.rz.unibw-muenchen.de/~p41bsmk/qmethod/index.htm.
4. Interfactor correlations below 0.5 are considered acceptable in Q studies. Our interfactor correlation matrix was:

	B	C	D
A	0.2726	0.2196	0.4001
B		0.3392	0.4586
C			0.1836

5. Numbers in parentheses refer to statements listed in Table 2.
6. McGinnis and Woolley (2000) report finding this same result in their recent study of watershed activists in California.
7. This statement ranked near the bottom for all other perspectives, but ranked 19th for this factor.

Acknowledgments

We would like to thank Scott Jackson and Gisela Walker from University of Massachusetts Extension and the twenty-one participants of the workshop who took the time to complete the Q sort exercise. We also thank the three anonymous reviewers whose comments helped improve this article.

This material is in part based on work supported by the National Science Foundation under grant number SBR 9613626, as well as funding from University of Massachusetts Extension Service. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the authors and do not necessarily reflect those of the funders.

References

Apostolakis, G. and S. Pickett. 1998. Deliberation: Integrating analytical results into environmental decisions involving multiple stakeholders. *Risk Analysis* 18(5), 621-634.

Bradbury, J. 1998. Expanding the rational for analysis and deliberation: Looking beyond *Understanding Risk. Human Ecology Review* 5(1), 42-44.

Bradbury, J. and K. Branch. 1999. *An Evaluation of the Effectiveness of Local Site-Specific Advisory Boards for US Department of Energy Environmental Restoration Programs*. Report PNNL-12139. Washington, DC: Pacific Northwest National Laboratory.

Bradbury, J., K. Branch, J. Heerwagen and E. Liebow. 1994. *Community Viewpoints of the Chemical Stockpile Disposal Program*. Washington, DC: Battelle Pacific Northwest Laboratories.

Brockner, J. and P. Siegel. 1996. Understanding the interaction between procedural and distributive justice: The role of trust. In R. M. Kramer and T. R. Tyler (eds.), *Trust in Organizations: Frontiers of Theory and Research*. Thousand Oaks, CA: Sage Publications.

Brown, S. 1986. Q Technique and method: Principles and procedures. In W. D. Berry and M. S. Lewis-Beck (eds.), *New Tools for Social Scientists*. Thousand Oaks, CA: Sage.

Carnes, S. A., M. Schweitzer, E. B. Peelle, A. K. Wolfe and J. F. Munro. 1998. Measuring the success of public participation on environmental restoration and waste management activities in the US Department of Energy. *Technology in Society* 20(4), 385-406.

Chess, C. and K. Purcell. 1999. Public participation and the environment: Do we know what works? *Environmental Science & Technology* 33(16), 2685-2692.

Chess, C., T. Dietz and M. Shannon. 1998. Who should deliberate when? *Human Ecology Review* 5(1), 45-48.

Coenen, F. H., D. Huitema and L. J. O'Toole (eds.). 1998. *Participation and the Quality of Environmental Decision-Making*. Dordrecht: Kluwer Academic Press.

Creighton, J., J. Delli Priscoli and M. Dunning (eds.). 1998. *Public Involvement Techniques: A Reader of Ten Years Experience at the Institute for Water Resources*. IWR Report 82-R1. Fort Belvoir, VA: Army Corps of Engineers.

Daniels, S. and G. Walker. 1996. Collaborative learning: Improving public deliberation in ecosystem-based management. *Environmental Impact Assessment Review*, 16, 71-102.

Dietz, T. 1987. Theory and method in social impact assessment. *Sociological Inquiry* 77, 54-69.

Dietz, T. and P. C. Stern. 1998. Science, values, and biodiversity. *Bioscience* 48(6), 441-444.

Dryzek, D. 1996. *Democracy in Capitalist Times*. NY: Oxford.

Dryzek, J. S. 1997. *The Politics of the Earth: Environmental Discourses*. NY: Oxford University Press.

Fiorino, D. 1990. Public participation and environmental risk: A survey of institutional mechanisms. *Science, Technology, and Human Values*, 152, 226-243.

Fischer, F. 1985. Critical evaluation of public policy: A methodological case study. In J. Forester (ed.), *Critical Theory and Public Life*, 231-257. Cambridge: MIT Press.

Focht, W. and J. Lawler. 2000. Using Q methodology to facilitate policy dialogue. In Helen Addams and John Proops (eds.), *Social Discourse and Environmental Policy*. London: Edward Elgar Publishing.

Forester, J. 1993. *Critical Theory, Public Policy, and Planning Practice*. Albany: SUNY Press.

Gamson, W. 1989. Media discourse and public opinion on nuclear power: A constructionist approach. *American Journal of Sociology* 95(1), 1-10.

Gutman, A. and D. Thompson. 1996. *Democracy and Disagreement*. Cambridge: Belknap.

Habermas, J. 1979. *Communication and the Evolution of Society*. (T. McCarthy, Trans.). Boston: Beacon Press.

Habermas, J. 1984. *Theory of Communicative Action: Reason and the Rationalization of Society*, Volume 1. (T. McCarthy, Trans.). Boston: Beacon Press.

Habermas, J. 1987. *Theory of Communicative Action: System and Lifeworld*, Volume 2. (T. McCarthy, Trans.). Boston: Beacon Press.

Innes, J. 1998. Information in communicative planning. *APA Journal* 64(1), 52-63.

Jasanoff, S. 1996. The dilemma of environmental democracy. *Issues in Science and Technology*, 13(6), 63-74.

Kalof, L. 1998. Understanding the social construction of environmental concern. *Human Ecology Review*, 4(2), 101-105.

Kalof, L. 2000. The multi-layered discourses of animal concern. In Helen Addams and John Proops (eds.), *Social Discourse and Environmental Policy*. London: Edward Elgar Publishers.

Kasperson, R. E. 1986. Six propositions for public participation and their relevance for risk communication. *Risk Analysis* 6(3), 116-124.

Kemp, R. 1985. Planning, public hearings, and the politics of discourse. In John Forester (ed.), *Critical Theory and Public Life* 177-201. Cambridge: MIT Press.

Laird, F. 1993. Participatory analysis, democracy, and technological decision-making. *Science, Technology, and Human Values* 183, 341-361.

Lauber, B. and B. Knuth. 1997. Fairness in moose management decision-making: The citizens' perspective. *Wildlife Society Bulletin* 25(4), 776-787.

Lind, E. A. and T. R. Tyler. 1988. *The Social Psychology of Procedural Justice*. New York: Plenum Press.

McDaniels, T., R. Gregory and D. Fields. 1999. Democratizing risk management: Successful public involvement in local water management decisions. *Risk Analysis* 19(3), 497-510.

McKeown, B. and D. Thomas. 1988. *Q Methodology*. Sage University Paper Series on Quantitative Applications in the Social Sciences 07-066. Beverly Hills, CA: Sage.

National Research Council. 1983. *Risk Assessment in the Federal Government: Managing the Process*. Washington, DC: National Academy Press.

National Research Council. 1996. *Understanding Risk: Informing Decisions in a Democratic Society*. Washington, DC: National Academy Press.

National Research Council. 1999a. *Perspectives on Biodiversity*. Washington, DC: National Academy Press.

National Research Council. 1999b. *New Strategies for America's Watersheds*. Washington, DC: National Academy Press.

Nature. 2000. Benefits of increased public participation (Editorial). *Nature* 405(6784), 259.

Pelletier, D., V. Kraak, C. McCullum, U. Uusitalo and R. Rich. 1999. The shaping of collective values through deliberative democracy: An empirical study from New York's North Country. *Policy Sciences* 32(2), 103-131.

Pritikin, T. 1998. A citizen's view: The nuts and bolts of co-partnerships. *Human Ecology Review* 5(1), 51-53.

Raffensperger, C. 1998. Guess who's coming to dinner: The scientist and the public making good environmental decisions. *Human Ecology Review* 5(1), 37-41.

Renn, O. 1992. Risk communication: Towards a rational discourse with the public. *Journal of Hazardous Materials* 29, 465-519.

Renn, O., T. Webler and H. Kastenholz. 1996. Procedural and substantive fairness in landfill siting: A Swiss case study. *Risk: Health, Safety, and Environment*, 7 Spring, 145-168.

Renn, O., T. Webler and P. Wiedemann (eds.). 1995. *Fairness and Competence in Citizen Participation: Evaluating Models for Environmental Discourse*. Boston: Kluwer Academic Press.

Rosenbaum, N. 1978. Public participation and democratic theory. In Stuart Langton (ed.), *Public Participation in America*, 43-54. Lexington, MA: Lexington Books.

Rowe, G. and L. J. Frewer. 2000. Public participation methods: A framework for evaluation. *Science, Technology, and Human Values* 25(1), 3-29.

Satterfield, T. A. 1996. Pawns, victims, or heroes: The negotiation of stigma and the plight of Oregon's loggers. *Journal of Social Issues* 52(1), 71-83.

Shindler, B. and K. A. Creek. 1997. *Monitoring and Evaluating Citizen and Agency Interactions: Framework Developed for Adaptive Management.* Report submitted to the USDA Forest Service, Cooperative Agreement #PNW 94-0584. Portland: Department of Forest Resources, Oregon State University.

Smith, P. and M. McDonough. 2001. Beyond public participation: Fairness in natural resource decision making. *Society and Natural Resources* 14, 239-249.

Stephenson, W. 1953. *The Study of Behavior.* Chicago: University of Chicago Press.

Stern, P. 1998. Understanding *Understanding Risk* and moving forward. *Human Ecology Review* 5(1), 55-57.

Thibaut, J. and L. Walker. 1978. *Procedural Justice: A Psychological Analysis*. NY: John Wiley & Sons.

Tuler, S. and T. Webler. 1999. Voices from the forest: What participants expect of a public participation process. *Society and Natural Resources* 12, 437-453.

Webler, T. 1995. 'Right' discourse in citizen participation: An evaluative yardstick. In O. Renn, T. Webler and P. Wiedemann (eds.), *Fairness and Competence in Citizen Participation: Evaluating Models for Environmental Discourse*, 35-86. Boston: Kluwer Academic.

Webler, T. 1997. Organizing public participation: A review of three handbooks. *Human Ecology Review* 3(1), 245-254.

Webler, T. and S. Tuler. 1999. Integrating technical analysis with deliberation in regional watershed management planning: Applying the National Research Council approach. *Policy Studies Journal* 27(3), 530-543.

Webler, T. and S. Tuler. 2000. Fairness and competence in citizen participation: Theoretical reflections from a case study. *Administration and Society* 32(5), 566-595.

Webler, T., S. Tuler and R. Krueger. 2001. What is a good public participation process? Five perspectives from the public. *Environmental Management* 27(3), 435-450.

Wondolleck, J. and S. Yaffee. 2000. *Making Collaboration Work: Lessons from Innovation in Natural Resource Management*. Washington DC: Island Press.

Woolley, J., M. McGinnis and W. Herms. 1998. Survey methodologies for the study of ecosystem restoration and management: The importance of Q-Methodology. In Kate Snow (ed.), *Critical Methodologies for the Study of Ecosystem Health*. Ann Arbor, MI: Sleeping Bear Press.

Elements and Test of a Theory of Neighborhood Civic Participation

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Abstract

A theory of neighborhood civic activity is proposed, and a telephone sample of 2,517 residents of the Philadelphia metropolitan region gathered for the Pew Research Center for the People and the Press was used to test the theory. Two dimensions of neighborhood civic engagement were found, one with government and the political process, and the second with schools, hospitals, and other non-government organizations. Both forms of engagement were associated with a family history of public involvement, a strong sense of personal efficacy, relatively high socioeconomic status, and financial and long-term investments in the neighborhood. Beyond those similarities, those that engaged in government-related civic activities tended to be older, Black, cognizant of crime and blight problems in their area and not trust government and many people in their neighborhood. Non-governmental civic activism was most strongly correlated with younger women with strong religious ties who trust the people with whom they interact. Implications of these observations for building a broader theory of civic engagement and enhancing government policy are discussed.

Keywords: *trust, neighborhoods, civic engagement, social capital, efficacy, environment*

The objective of this paper is to contribute toward building theory about people who volunteer in schools and hospitals in their own neighborhoods, vote in local elections, call the police, argue with elected officials, and are involved in other civic activities in their neighborhoods without receiving remuneration. Neighborhood activism is important because of the continued deterioration of many neighborhoods and the lack of a strong federal and state financial commitment and policy direction, despite recent record levels of budgetary surplus (Moynihan 1996; Rusk 1999; Keating and Krumholz 1999). Not only are youth and hospital patients neglected when there is no civic participation, but also many neighborhoods literally depend on activism for survival. Without local civic engagement, some neighborhoods are attacked by developers and turned into parking lots, sports complexes, divided by highways and gentrified for more affluent people. Others are neglected and deteriorate until they become ripe for redevelopment (Keating and Krumholz 1999; Metzger 2000).

A theory to explain neighborhood civic activities begins with a review of environmental activism, because factors that drive people to protect the physical and social environments of their neighborhood should be among the motivations for people demonstrating about global warming, writing letters in support of state programs to protect wetlands, and pressuring the mayor to set up a city-wide recycling program. Values are a cornerstone of these theories. For example, Spring and Spring (1974) have argued that some religions are much more supportive than others of protecting the physical environment (see also Eckberg and Blocker 1996; Dietz, Stern and Guagnano 1998). In other words, religious-based values would lead some people to focus on protecting their neighborhood. Douglas and Wildavsky (1982) classified cultural views and proposed that those who fit into the "egalitarian" group are most likely to support environmental protection (see also Dake 1991; Peters and Slovic 1995). Inglehart (1977, 1995) argued that affluent and secure people have "post-materialistic" values that emphasize quality of life and self-expression rather than materialism (see also Dunlap and Mertig 1997; Dietz, Stern and Guagnano 1998). These post-materialistic people are the likely candidates to be social and environmental activists.

Human Ecology Review published a paper by Stern et al. (1999) that explicitly incorporates environmental and individual characteristics, including psychological ones, into a theory of environmental activism. The moral norm-activation (MNA) theory focuses on social movements, such as civil rights, environmental justice, and conservation (Schwartz 1973; 1977; Stern et al. 1999). The authors assert that people who support environmental values, believe those values to be threatened and perceive that they can take actions that will make a difference are the people who act.

Despite the breadth of factors included in MNA, surveys and case studies by this author show that MNA does not fit easily with the reality of inner city neighborhoods. For example, in one small sample of 102 residents living in a former public housing project (now demolished) and in others done in economically stressed neighborhoods, I found that altruistic values do not necessarily lead to action (Greenberg 1997, 1998). Some people who held the strongest values in support of school lunch programs and protecting the streets against crime did not act, whereas others who did not express strong altruistic values did. The people who did act focused on protecting their life savings and their family and neighbors; they did not trust the school system or the police to protect their children, and expressed other concerns directly tied to self-interest. In conversations with some of these people, I often found altruism, but not at the surface and usually based on family history; self-interest clearly dominated. Also, compared to MNA, the theory presented here is heavily dependent on personal propensity to engage in many kinds of activities, civic or otherwise. In other words, efficacious and high-energy people are more likely to participate than are those with the most altruistic of values but low energy and little sense of efficacy. After describing the elements of a theory of civic participation, a large data set collected for metropolitan Philadelphia is used to test the theory.

A Theory of Neighborhood Civic Participation

I propose that family history, self-interest, and personal efficacy are foundations of neighborhood civic participation. I briefly sketch the theory, initially without referring to the literature. This is done in order to avoid numerous breaks in the presentation. After describing the theory, I review supporting literature for it.

I postulate that neighborhood civic participation is kindled long before adulthood. A parent, uncle, grandparent, other family members, and very close family friends were volunteers and hence served as participant role models. These role models built civic activity as an important value. Family history also is at least partly responsible for teaching people how to perceive stress as an opportunity rather than as a dread to be avoided. In addition, most leaders are more educated and affluent than followers, feel that they can have an effect on their surroundings, and tend to engage in many different kinds of self-help activities. In other words, they are confident that they can have an impact and have the energy and time to engage. Family history is central to molding these socioeconomic status and personality characteristics.

Motivation for neighborhood civic engagement is based on self-interest. Those who are older, homeowners, and long-term residents of the neighborhood have a critical vested interest in the neighborhood. In a distressed inner city environment, their motivation is fear that their investment in their neighborhood, perhaps their safety, is threatened by crime and physical decay. In a suburban setting, a proposed development (e.g., mall, factory, highway) will be the motivating threat. Threatened people, whatever their location, distrust government and many of the people in their neighborhood who they perceive as threatening their investment. As part of this self-interest expectation, I postulate that older and more educated African and Latino Americans will be disproportionately engaged with local government because disproportionately they are likely to be in neighborhoods stressed by crime and physical decay and have an investment in those neighborhoods. They are also likely to remember behaviors by the local government that they perceive as incompetent and/or hostile, and it is their lack of trust in government to protect their interests that motivates them to monitor and engage.

Volunteering to help in schools, hospitals, and other for profit and not-for-profit organizations is, I believe, a different form of neighborhood civic activism, although some highly active people doubtless engage in government and volunteer for other activities. In fact, I expect some overlap between engaging with local government and volunteering as a coach, part-time teacher, and for other neighborhood civic activities. Like their counterparts involved with government, I propose they will have a family history of activism, a high level of activity in general, possess a strong personal efficacy, and more likely be women than men. But if their investment in their neighborhood is not threatened (in other words, they do not need to engage with local government) then their stage in life and family background will likely govern their activism. Those with young children will be motivated toward schools, sports, and other youth-oriented activities; and those who belong to an active religious or non-religious institution will volunteer to feed the homeless, help out in the local health clinic, and engage in volunteers in ways that are consistent with organizations they belong to.

People who do not engage in civic activity, I propose, are markedly different from those who do. Those who are inactive will have no family history of engagement, nor have a sense that they can impact the neighborhood or be heavily involved in self-improvement activities. They will not be invested in the area. They are likely to be young, male, rent, and be less aware of any local problems. In other words, they have neither the family history, personality, nor current self-interest and motivation to be involved in the local civic activities.

The literature supporting this theory ranges from a limited number of case histories to quantitative surveys of sample populations. Beginning with family history, the author

reviews each of the elements of the theory. In a country that has a history of distrusting government, the U.S. prides itself on local activism (Wills 1999). Some exceptional people send letters to and call mayors, attend planning board meetings, tutor children, and serve dinners to the homeless. For example, Yvonne Carrington, a resident of a notorious public housing project in Chester, Pennsylvania, became a grassroots leader after her daughter was killed a few feet from her home by youths. Carrington coped with her grief by organizing the residents of her decaying housing project and winning a lawsuit against U.S. HUD. Carrington took over management of the housing project, raised funds to rebuild the housing project into what now looks like garden apartments, organized after-school activities, programs for the elderly, and obtained funds to train local residents to safely remove asbestos and engage in other building-related work. In addition, Carrington organized a food drive and with her neighbors delivered food to the residents of a Southern community who had been the victim of a flood (Greenberg 1999; see also Stack 1974).

Other grassroots leaders interviewed as part of the same research shared many of the same attributes, that is, they almost always were introduced to the idea of civic service by relatives who were heavily committed to community service. In addition, nearly all of them had suffered traumatic events in their early lives, such as death of a loved one, parental divorce, other forms of irreconcilable separations; some were told that they would never be qualified to be a doctor, lawyer or some other high status occupation. They were motivated and had developed strong coping skills. While not always highly educated measured by years in school, these civic participants were educated about the issues of importance to them. Carrington had altruistic values but they were dormant until a brutal tragedy occurred. She then seized upon neighborhood activism as a way of protecting the rest of her family and her neighbors, and respond to her anger.

With a few exceptions, most of the civic engagement literature about family history comes from studies of Presidents, governors, mayors, and military commanders (Barber 1992; Burns 1978; Gardner 1995; Holli 1999; Jones 1989; Halberstam 1969; Miller, Rein and Levitt 1990; Leavitt and Saegert 1988; Freudenberg and Steinsapir 1991). These reiterate the importance of family history in building motivation for service and a strong personality capable of coping with stress.

Personality is a strong correlate of civic activity. Some people are dispositional optimists, others are pessimists; some have a sense of mastery and others feel helpless; some cope with stress by reaching out to many people, including their neighbors, others cope silently; and some want control of their environment, while others do not. The reasons for these personality traits are many and complex, relating both to family history and to current place in life. Regarding the theory suggested here, the most important evidence shows that efficacious people tend to adopt personal protective health habits, and also engage in activities to protect their neighborhoods. They tend to rebound faster from surgery, from alcoholism, and at the neighborhood scale try to get local officials to help their neighborhoods more than do their counterparts who are pessimists, and do not consider themselves to have much control over their environments (Folkman and Lazarus 1988; Lazarus 1991; Pearlin et al. 1981; Scheier and Carver 1985; Greenberg 1997; Lin and Peterson 1990; Furnham and Steele 1993; Stone and Neale 1984).

Regarding environmental conditions that precipitate activism, people want good schools, nearby shopping, sound and attractive housing, and other amenities. Even more essential is that there be no crime and no physical decay (Greenberg and Schneider 1996; Greenberg 1999; Clay and Hollister 1983; Sanoff 1975; Gallagher 1993; Lewis, Lowenthal and Tuan 1973; Ross and Mirowsky 1999). People who are afraid to walk in the street and live in fear of having their homes burglarized, or live near a decaying polluted factory and at the same time feel efficacious are going to be motivated to engage with government to stabilize and improve the neighborhood.

The most uncertain evidence from the literature was about demographic characteristics and trust. The preponderance of people in leadership positions in the U.S. leaders are older, white males who are highly educated and affluent (Flynn, Slovic and Mertz 1994; Barber 1992; Burns 1978; Gardner 1995; Hollis 1999; Jones 1989; Halberstam 1969). But grassroots leadership and participation do not have the same monetary and power rewards as business and elected office (W. K. Kellogg 1999). Furthermore, African Americans and Latino Americans disproportionately live in stressed neighborhoods and will have the motivation to protect their investment. Accordingly, as noted above in the theory description, I expect neighborhood engagement with government to disproportionately be among older people, African and Latino Americans, and females, although survey data generally show low government-related participation rates among Latino Americans (Pew 1999a). In addition, education may be measured by length of residence in the neighborhood rather than in formal school-based education (Leavitt and Saegert 1988).

Regarding trust and civic engagement, mistrust of sources of authority has been receiving considerable attention in the United States. Many Americans mistrust and are cynical about elected officials, attorneys, business leaders, and even physicians, scientists, and educators who were once

viewed as more trustworthy (Pew 1998, 1999b). Unfortunately, during the last two decades, there has been no shortage of highly publicized scandals, other ethical violations, and environmental incidents, along with a perceived lack of responsiveness of government and business to public interests, to engender mistrust (Miller, Rein and Levitt 1990; Edelstein 1988; Flynn et al. 1992; Freudenberg and Steinsapir 1991; Piller 1991).

Putnam (1996; 1998) has argued that people are less engaged in civic activities than the previous generation and those that are most engaged are trusting. Others have challenged his findings (Ladd 1996). Using the same data employed in this study, Pew researchers (1999b) found an inconsistent relationship of civic engagement and trust. They concluded that a moderate degree of mistrust may engender civic activity; that is, some people may mistrust but they do not necessarily disengage, whereas others who mistrust lack personal efficacy and do not engage. In this paper, these Pew data are re-examined to test the proposed theory that family history, self-interest, and efficacy are key elements that explain neighborhood civic engagement.

Data and Methods

Study Area

Random digit dialing was used to obtain a data set from residents of the City of Philadelphia and adjacent Bucks, Chester, Delaware, and Montgomery Counties, Pennsylvania (Pew 1999b). The Philadelphia region is an excellent place for such a study because of its demographic characteristics, and economic diversity. More specifically, this theory of neighborhood civic participation should be tested in a place with many old neighborhoods, some of which are highly stressed and some of which are quite affluent and have been so for many years; in a place where the population characteristics vary a great deal, including many different racial, ethnic groups, and many opportunities for participation in religious and other organizations that date back for many decades and generations. The Philadelphia region certainly fits these criteria along with Boston, Chicago, Cleveland, Detroit, New York, and many of the large metropolitan areas of the Northeast and Midwest. As noted in the discussion, evaluations should also be done in the newer metropolitan areas such as Los Angeles, Phoenix, Atlanta, Miami, and Houston.

The population of the five Philadelphia metropolitan counties was estimated by the U.S. Bureau of the Census at 3.7 million in 1995. In 1994, the region as a whole was ranked 29th in per capita income among metropolitan areas in the U.S. in 1994. However, this overall affluence masks places of substantial impoverishment within the City of Philadelphia, adjacent Chester City, and several other locations in the region. The Philadelphia region also had more than its share of political controversies. Recent ratings of the best and worst mayors of large U.S. cities by academics and other knowledgeable political people were done for the period 1820 to 1985 (Holli 1999). None of Philadelphia's recent mayors were near the top of the list. Frank Rizzo, mayor during the period 1972-1980, was rated the worst mayor. Wilson Goode, his successor, ranked 12th worst. Many of the respondents to this survey were residents of Philadelphia during the tenure of these controversial mayors. In short, it is reasonable to expect that respondents might disproportionately rate government in Philadelphia as less than trustworthy. In other words, this study area is a good place to look for the expected association between government engagement and mistrust by people who live in stressed neighborhoods.

Survey Questions

Pew's survey instrument was developed after a conference of experts about social capital and trust and following up on focus groups for questionnaire development (Pew 1999b). The instrument consisted of over 100 closed- and open-ended items, and all the questions in this study are in the above report. Pew was exploring many dimensions of the relationship of citizen engagement and trust. The objectives of this study led to the selection of 52 of the items from the survey. Thirteen were used to measure civic activities. The remaining 39 were used to construct indicators that relate to the proposed theory: (1) 4 indicators of personal efficacy and empowerment, (2) 8 demographic measures, (3) 6 measures of neighborhood problems, (4) 8 activity indicators, (5) 10 indicators of trust, and (6) 3 family history measures.

Civic Engagement. The 13 indicators of engagement include a broad spectrum of activities such as contacting an elected official, voting in local elections, volunteering in schools and hospitals, joining a recreational league, and 8 others (Table 1). Some questions asked about activity during the last year and the others asked if the respondent had ever engaged in the activity. The key is that the range is broad enough to encompass what we would normally consider government-oriented and other forms of civic activity.

Efficacy. The four measures of efficacy asked if a respondent had tried to get local government and neighbors to work on a problem, and their perception of their effectiveness.

Demographic Characteristics. Given the expectation about the importance of neighborhood investment and standing in the community, it was important to have data on age, ethnicity/race, length of residence in the neighborhood, home ownership, gender, education and income.

Neighborhood Problems. Regarding neighborhood environmental conditions, the author chose six indicators. One

Table 1. Participation rates of respondents in the Philadelphia metropolitan area.

Participation Rates (n = 2,517)	%
Ever joined or contributed money to an organization in support of a particular cause	66
Always or almost nearly always vote in elections for mayor or council	60
Ever attended a town meeting, public hearing or public affairs discussion group	47
Ever called or sent a letter to any elected official	44
During last year volunteered for any church or religious group activity	27
During last year volunteered for any organization to help the poor, elderly or homeless	22
Ever participated in organized recreational leagues, such as softball or bowling leagues	21
During last year volunteered for any child or youth development programs, such as day care centers, scouts or Little League	18
During last year volunteered for any school or tutoring program	16
During last year volunteered for any local government, neighborhood, civic or community group, such as block association or neighborhood watch	16
During last year volunteered for any hospital or health organization, including those that fight particular diseases	11
During last year volunteered for any political organizations or candidates	7
During last year volunteered for any environmental organization	5

asked respondents to rate the quality of their neighborhood on a five point scale (1 = excellent to 5 = poor). Respondents are also asked to indicate whether crime and blight problems exist in their neighborhood and if they feel safe.

Activities. The essence of the expectation is that those who are heavily engaged in many activities will also be engaged in civic ones. Hence, it was important to have religious attendance, participation in self-improvement through continuing education and exercise. The availability of measures of television watching, and Internet and e-mail use were valuable indicators of how people spend their time and interact with one another.

Trust. Testing the theory required information about trust in people and authority. Nine of the questions asked respondents to indicate whether they feel that they can trust others "a lot," "some," "only a little," or "not at all." A "don't know" option was also available. The tenth question asked if people who come into contact with the respondent trust them.

Family History. Questions about family history of civic engagement and family status at an early age allowed the evaluation of the proposal that those early experiences would influence civic engagement.

Results

Response

During the period November 13, 1996 to December 11, 1996, a total of over 10,000 phone numbers were obtained for the survey. Sixty percent of the 10,078 were found not to be eligible (30% were no longer in service or were business numbers, 8% were not eligible to be surveyed, and no response could be obtained from 22% after repeated contacts). Of the 4,003 who were successfully contacted, 2,517 (63%) yielded completed interviews. The surveyors are 95% confident that errors attributable to sampling is ± 2 percentage points.

Table 1 summarizes respondents' participation rates. Over 60 percent have joined or contributed money to an organization supporting a cause and almost always vote in local elections. About 45 percent have attended a town meeting, a public health or public affairs discussion, and have sent a letter to an elected official. During the last year, about one-fourth volunteered for a religious-related activity and volunteered for an organization that helps the needy. Less than 20 percent volunteered for activities that aid youth, the ill, the environment and political organizations or candidates.

Question 1: Dimensions of Participation

Government engagement was more prevalent than non-government. Regarding government engagement, 9 percent of respondents participated in none of the six activities and 19 percent in only one. Forty-three percent engaged in two or three, and 29 percent in four or more. In comparison, 37 percent of respondents had not engaged in any of the seven non-government activities and 27 percent had participated in one. Twenty-nine percent had engaged in two or three and only 7 percent in four or more of the seven. The combination of heavy government and non-government activity was rare. Only 111 people (4.5%) were active in four or more government and four or more non-government related civic activities. In contrast, 16 percent engaged in zero or only a single activity.

The author had anticipated at least two different types of civic participation. Depending on the method of analysis, two to four dimensions were found. Factor analysis and Cronbach's Alpha statistics were used to assess these dimensions. Table 2 shows the results of a varimax rotated factor analysis of the 13 civic engagement dimensions. The first factor (government and politics) shows that respondents who participate in any one of the six government-engagement activities often engage in many of them, such as contacting an elected official (r = .689), attending town and other public meetings (r = .658), voting in local elections (r = .609), joining a group in favor of a cause (r = .488), volunteering for a

Table 2. Factor analysis of respondent participation groupings.*

Type of Participation	F1: Govt. & politics	F2: Youth oriented	F3: Church-related outreach	F4: Help people
Have ever called or sent a letter to any elected official	.689			
Have ever attended a town meeting, public hearing or public affairs discussion group	.658			
Always or nearly always vote in elections for mayor or council members	.609			
Joined or contributed money to an organization in support of a particular cause	.488			
During last year volunteered for any political organizations or candidates	.437			
During last year volunteered for any local government, neighborhood, civic or community group, such as block association or neighborhood watch	.407			
During last year volunteered for any child or youth development programs, such as day care centers, scouts or Little League		.726		
Have ever participated in organized recreational leagues, such as softball or bowling leagues		.699		
During last year volunteered for any school or tutoring program		.525		
During last year volunteered for any church or religious group activity			.767	
During last year volunteered for any organization to help the poor, elderly or homeless			.563	.495
During last year volunteered for any hospital or health organization, including those that fight particular diseases				.729
During last year volunteered for any environmental organization				.553

*The numbers in the table are correlation coefficients. The four factors accounted for 58% of the covariance.

political organization (r = .437), and volunteering for a local government, neighborhood, or civic group activity (r = .407). In other words, there is a clear government engagement dimension. Cronbach's Alpha was used to further estimate the reliability of the six government engagement variables as a single government encasement dimension. They demonstrated good reliability as a single scale. Cronbach's Alpha for the six was .65, where ≥ .4 to < .6 is considered fair reliability, ≥ .6 to < .8 is considered good reliability and ≥ .8 is considered excellent.

The second, third and fourth factors focused on three non-government civic engagement activities. The second of four was youth-oriented, including volunteering for child or youth development (r = .726), school or tutoring programs (r = .525), and participating in organized recreational leagues (r = .699). The third paired volunteering for a religious activity (r = .767) with helping the needy (r = .563). The fourth grouped individuals who volunteered to support public health (r = .729), environmental protection (r = .553), and any organization to help the needy (r = .495).

Further investigation with oblique factor analysis and the Cronbach's Alpha statistic showed that the seven non-government activities could be collapsed into a single dimension. That is, the three non-government dimensions had slightly correlated factors in the oblique rotation, and the seven non-government civic engagements had a Cronbach's Alpha of .58, which is fair reliability. The cause of that lower reliability among the non-government indicators was the low correlations between those who during the last year participated in activities that are youth oriented (organized recreational leagues; tutoring; youth development) and those whose volunteering tended to be oriented to needy populations (poor, elderly, homeless, ill), and the environment. The average correlation coefficient between the youth-related activities and others was only r = 0.092 (all were statistically significant at p < .01 primarily because of the large number of respondents).

Question 2: Correlates of Neighborhood Civic Engagement

Thirty-nine indicators about demography, activity, family history, neighborhood problems, feelings of efficacy, and trust produced 78 simple bivariate correlations with the two civic engagement measures. The results showed many statistically significant relationships. By chance, only four should have been statistically significant (.05 x 39 x 2 = 3.9). Regarding government engagement, 19 of the 39 were statistically significant, and 19 of the 39 correlations with non-government engagement were also statistically significant (p < .05).

Four methods were used to assess the results at the multivariate level. Each method has advantages and disadvantages, which will be briefly reviewed in the context of the data set. The simplest method is to test the entire model at once, that is, put in all 39 variables. The advantage is that every correlation can be studied. The disadvantage is that many of the 39 variables in this data set are co-linear, which

Table 3. Correlates of two types of public engagement: All variables entered.*

Characteristic (number of variables)	Government Engagement	Other Civic Engagement
Feelings of efficacy (8 variables)	.469	.287
Demographic characteristics (8 variables)	.439	.233
Neighborhood problems (6 variables)	.249	.130
Activity level of person (8 variables)	.283	.411
Trust level of person (10 variables)	.052	.222
Family history (3 variables)	.290	.210
All variable (39 variables)	.636	.542

*Multiple r values shown.

means that a single equation with 39 variables is tedious, if not infeasible, to assess and explain in a single paper. An alternative used here was to enter together all of the variables that are part of the same element group (e.g., efficacy, demographic, neighborhood problems, activity level of person, trust level of person, and family history), and interpret the results by group of characteristics.

Table 3 summarizes these results. Efficacy (multiple r = 0.469) and demographic characteristics (multiple r = 0.439) are the strongest correlates of government engagement, whereas activity level of person (multiple r = 0.411) and efficacy of person (multiple r = 0.287) are the strongest correlates of other forms of civic engagement.

A limitation of assessment by groups of variables rather than by individual variable is that one obviously wants to know the key variables from within each group. An efficient way of identifying the most important indicators is through stepwise regression. The advantage of stepwise regression is that the strongest correlates are entered into the equation. The

Table 4. Multiple Stepwise Regression of Engagement and Correlates.

Characteristic	Government Engagement Standardized Beta Coefficients (rank)	Other Civic Engagement Standardized Beta Coefficients (rank)
(*Efficacy*) Have tried to get local government to pay attention to something that concerned you	.218*** (1)	.092*** (6)
(*Demographic*) Respondent age, in years	.254*** (2)	- .079** (16)
(*Demographic*) Education completed	.128*** (3)	.090*** (10)
(*Efficacy*) People like you can have an impact on your community	.109*** (4)	.084*** (5)
(*Family history*) As a child someone in your family worked as a volunteer for a local organization or hospital	.132*** (5)	.108*** (3)
(*Efficacy*) Would take up problem directly with local government officials	.120*** (6)	
(*Efficacy*) Tried to get neighbors to work together to fix or improve neighborhood	.100*** (7)	.093*** (9)
(*Demographic*) Family income, in dollars	.079*** (8)	.047* (21)
(*Activities*) Attended a church or religious service during last year	.070*** (9)	.112*** (2)
(*Activities*) During last year took continuing or adult education classes	.067*** (10)	.103*** (4)
(*Demographic*) Length of residence in Philadelphia region	.066*** (11)	
(*Activities*) During last year exercised or worked out	.069*** (12)	.070*** (11)
(*Family history*) As a child, parents were divorced	.056*** (13)	.058** (14)
(*Trust*) Trust the federal government in Washington	- .053** (14)	
(*Demographic*) Respondent identifies as Black	.055** (15)	
(*Trust*) Trust people in the neighborhood	- .046** (16)	
(*Activities*) Use computer for e-mail and Internet	.047** (17)	
(*Activities*) Wishes could volunteer more	.045** (18)	- .064** (15)
(*Demographic*) Home owner	.047* (19)	.056** (17)
(*Neighborhood Problems*) Illegal drug use or drug dealing a neighborhood problem	.044* (20)	
(*Neighborhood Problems*) Neighborhood quality is high	.071* (21)	
(*Neighborhood Problems*) During last 12 months someone from the family has been a victim of a crime	.036* (22)	
(*Neighborhood Problems*) Run down or abandoned buildings and empty lots are neighborhood problem	.042** (23)	.062*** (19)
(*Activities*) Participated in a reading group, religious study group or other study group during the last year		.229*** (1)
(*Activities*) During last year played cards or board games with a usual group of friends		.085*** (8)
(*Trust*) Trust people in the same clubs or activities as you		.083*** (7)
(*Trust*) Trust people in your church or place of worship		.085*** (13)
(*Trust*) Trust people in immediate family		.060** (18)
(*Trust*) Trust fire department in your area		.041* (20)
(*Demographic*) Respondent is female		.083*** (12)

***Statistically significant at p < .001
**Statistically significant at p < .01
*Statistically significant at p < .05

disadvantage is that sometimes the strongest correlates are highly correlated with other variables (e.g., trust people in family and trust people in clubs). With this caveat noted, the stepwise results are summarized in Table 4.

The standardized beta coefficients for the statistically significant ($p < .05$) indicators are presented along with the order in which the correlate was brought into the statistical model for the governmental engagement model. Standardized beta coefficients are the result of multiplying the regression coefficients by the ratio of the standard deviation of the independent variable to the standard deviation of the dependent variable. This results in coefficients that indicate the relative importance of variables. Alternatives would have been to provide the zero-order correlation coefficients, unstandardized regression coefficients, and the partial correlation coefficients. The author prefers the standardized coefficients because they allow direct comparison among all the indicators.

The specific variables contributing to the overall results presented in Table 3 are clear in Table 4. Four of the first eight strongest correlates of government engagement measure efficacy and three of the remaining four are demographic. The overall pattern is that those who engage with government tend to have a strong personal sense of efficacy, they are older and more educated and have higher incomes than their counterparts who do not engage. Lastly, but quite notable, is that they have a family history of volunteering in local organizations.

Four of the eight strongest correlates of non-government civic engagement point to active people. They participate in a reading group, religious study group or other study group, attend a church or religious service, take continuing adult or continuing education classes, and play cards or board games with a usual group of friends. In other words, these people are engaged in activities outside the home. Two of the remaining four strongest variables measure efficacy. The respondents feel like they can have an impact on their community, and have tried to get local government to pay attention to something that concerned them. Those engaged in non-government civic engagement also trust people who are part of their clubs and activities and they have a family history of volunteering.

Overall, there are four indicators that are predictive of both forms of civic engagement: feeling that they can have an impact on their community, having the experience of trying to get local government to pay attention to something that concerned them, trying to get neighbors to work together, and having a family history of volunteering.

Drawing from both Tables 3 and 4, neighborhood problems are more associated with government activism (multiple $r = .249$) than non-governmental (multiple $r = .130$). Both regressions identified run down or abandoned buildings and empty lots as significant correlates of activity. But those who engage in government-related civic activity are more distressed by illegal drug use and are more likely than the norm to have had a family member been a crime victim in the recent past. Notably, they also rate their neighborhoods as high quality despite these problems, an observation consistent with an optimistic personality. These results had been anticipated with one exception. The author had not expected engagement in non-government activities to be associated with concern about neighborhood blight.

Activities are stronger correlates of the non-governmental activity (multiple $r = .411$) than the governmental (multiple $r = .283$). The two strongest correlates of the propensity to engage in non-governmental civic activities are having participated in a reading group, religious or other study group and having attended a church or religious service during the last year. Activism was also associated with physical exercise, and in the case of government engagement with using the computer for e-mail and Internet. Notably, those engaged in government-related civic activity wished they could volunteer more, their counterparts who engage in non-governmental civic activities do not wish to engage more. The direction of the results had been expected, but the fact that the set of activity variables were the strongest predictors of non-government-related activities was surprising. I had anticipated efficacy and family history would be even stronger correlates.

As expected, trust indicators show a marked contrast between the two types of engagement. Those who engage in non-governmental activity trust people in the same clubs or activities ($B = .083$), people in their church or place of worship ($B = .085$), people in their immediate family ($B = .060$) and the local fire department ($B = .041$). Those who engage in governmental-related activities are notable by their lack of trust in people in their neighborhoods ($B = -.046$) and the federal government in Washington, D.C. ($B = -.053$).

The last group of potential correlates was family history. In both cases, those who engaged came from a family where the parents disproportionately were divorced as children and where the family had a history of civic engagement. In long face-to-face interviews, the author had previously found that a history of family distress seemed to be associated with later civic engagement. The finding of an association of family divorce with civic engagement in a sample of 2,500 people elevates this to an association clearly deserving follow-up.

The limitations of the general linear and stepwise models led the author to try an approach that avoids co-linearity problems. The 39 correlates were converted into uncorrelated dimensions with principal components analysis and the component scores were used as variables in the analysis. In addition, an advantage of this approach is that it can produce components that are different from the analyst's construct.

There are disadvantages. First, the new variables produced are linear combinations of the original variables, which means that each component can contain a great detail of statistical noise caused by the reality that every indicator plays a role in the component score. In this case, this analysis reduced the 39 variables to eight components that tended to replicate the activities, family history, neighborhood problems, feelings of efficacy and trust dimensions, rather than intertwine them. The only obvious exceptions were the demographic characteristics. Length of residence and home ownership were part of the feelings of efficacy component that was found, and Black respondents were part of the distressed neighborhood component. In addition to not contributing as much as had been expected, the components obscured the role of some variables, most notably gender, and so are not presented here.

The fourth statistical method was discriminant analysis. The regression linear regression analyses showed that there were some underlying variables that strongly contributed to both forms of civic participation. Furthermore, the bivariate correlation between government and non-government forms of engagement was r = 0.319. Consequently, a test was made to determine if there are strong patterns among both forms of participation. Using cutoffs in participation, respondents were grouped into four categories: (1) strong government and strong non-government engagement, (2) little engagement in either, (3) strong government and weak non-government engagement, and (4) weak government and strong non-government engagement. The 39 correlates were used to determine which were the strongest discriminators among the four engagement categories. Unfortunately, sensitivity analysis of the results showed that the results were unstable. That is, the definition of what constituted "strong" and "weak" engagement substantially impacted the four categories and the overall results. Since the analysis did not produce stable results, it is not presented.

Discussion

The three major findings of the empirical tests can be summarized as follows:

1. There are at least two forms of neighborhood activism, one is with *government and the political process* and the second form of volunteering is with *schools, hospitals, and other non-government-related activities*.

2. With regard to *government-related actions*, those who engage tend to have a strong personal sense of efficacy, they are older and more educated and have higher incomes than their counterparts. Lastly, but quite notable, is that they have a family history of volunteering in local organizations. They are active people and do not trust people who live in the neighborhood or officials who represent it, and they perceive drug and blight problems in their neighborhoods. In other words, they have the self-interest, the efficacy, the mistrust, and the family background to deal with the considerable stresses that go along with dealing with (often figuratively and literally, battling) elected officials and civil service.

3. People who *volunteer in hospitals, schools, and for other forms of non-government civic activism* are disproportionately active in and outside their neighborhood. They participate in a reading group, religious study group or other study groups, attend religious services, take continuing adult or continuing education classes, and play cards or board games with a usual group of friends. Two of the remaining four strongest variables measure efficacy. The respondents feel like they can have an impact on their community, and have tried to get local government to pay attention to something that concerned them. Unlike their government-engaged counterparts, those active in non-government civic activities trust people who are part of their clubs and activities and they have a family history of volunteering.

Before placing these findings in the context of the social capital literature, it is essential that the limitations of the study be reviewed. While this survey has the largest number of subjects of any study known to the author focusing on the correlates of civic engagement at the time it was made, the data were collected just before the December 1996 winter holidays. Snow et al. (1986) point out that people move between passive support and activism. Would the results be the same if the survey were done in 2001? Only a repeat survey can provide the answer. Second, the Philadelphia region is large and populous, but Northeastern. Would these same findings be made in a Southern, Midwestern, and Western metropolitan region of the same or even greater size? Would they be made in smaller cities, old industrial suburbs, and new growing metropolises? I wonder for example, how family history might be changed in a relatively new metropolis, such as Las Vegas, where family identity with the region for the overwhelming majority is short-lived. Philadelphia does not have a large Latino or Asian American population, so not much could be learned about these rapidly growing populations in this study. More studies across the spectrum of geographies represented in metropolitan regions are essential to test and refine the theory presented here.

The author was offered these data because of his interest in testing this theory. However, the survey data were not ideal for a full test. In particular, the family history questions were too few, and although they were significant predictors, I view these family history results as teasers of the intricate relationships of family history and current civic engagement. Frankly, I doubt that a fully labeled, quantitative survey can accurately disentangle the nuances of personality, family his-

tory and activism. The findings of this research call for ethnographic work to clarify these relationships. The efficacy results were strong. Yet I would have been more satisfied had some standard optimism and locus of control questions been included. The results could then have been compared with the considerable literature about personality in the public health literature. Use of at least a few standard indicators of health status is the best way of directly tying the massive personal health outcome literature to the much smaller neighborhood health one. This author firmly believes that personal health protective activities are related to civic neighborhood protecting activities, but that hypothesis awaits testing. The survey would have benefited from more questions about personal values that would have permitted a better assessment of the association of environmental and social values. Finally, I think self-interest and altruistic motivations lie along a continuum, and I suspect the geographical scale of the issue (ranging from global to block) is key in determining whether self-interest or altruism dominate. An experiment to test this expectation would be useful. Summarizing, despite the large size of this survey, this data set has generalizability and limitations because it was not designed to help test a preconceived theory of neighborhood activism.

There is no mystery why a theory of local civic activity is worth building. Civic activists build social capital. Social capital is the stock of behaviors, interrelationships, and trust that neighborhoods use to solve problems and improve neighborhood quality by working with not-for-profit and for-profit partners, and government (Putnam 1998; Galster, Metzger and Waite 1999; Temkin and Rohe 1998; Sampson, Raudenbush and Earls 1997; Nyden, Maly and Lukehart 1997; Keyes et al. 1996; Clay and Hollister 1983; Powell 1990; Shlay 1999).

Putnam (1998) presented four challenges for social capital theorists: (1) demonstrating the utility of the concept to housing, environment, and other public policy areas; (2) determining how social capital leads to improvement in neighborhoods; (3) determining the different forms of social capital (in this regard, he asserts that we have only a crude comprehension of it); and (4) how social capital is built and lost. This study contributes to the third and fourth of these challenges. It shows at least two different and only slightly correlated forms of civic engagement in the neighborhoods of one of the largest regions in the U.S. and provides a theory and empirical evidence to support major parts of the theory. In addition, the theory suggested here links different research disciplines, most notably anthropology, geography, public health, social psychology, sociology, and urban planning. The theory proposed here and the MNA theory offer an opportunity for researchers to find the intersections of a continuum from self-interest to altruism, and from global to block-scale concerns. Directing our collective critical eye and analytical skills to explaining and boosting civic engagement is not only a fascinating intellectual challenge but also means a lot to all Americans who believe in stabilizing and improving neighborhood quality.

Endnote

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Acknowledgments

I would like to thank Professor Cliff Zukin of Rutgers University for making these data available to me. I thank my colleagues Dona Schneider, Frank Popper, Henry Mayer, and Karen Lowrie for their helpful comments on an earlier draft of this manuscript. The observations, conclusions, and interpretations are solely the responsibility of the author and should not in any way be interpreted as representing the views of the Pew Research Center for the People and the Press.

References

Barber, J. 1992. *The Presidential Character: Predicting Performance in the White House*. Englewood Cliffs, NJ: Prentice-Hall.

Burns, J. M. 1978. *Leadership*. New York: Harper & Row.

Clay, P. and R. Hollister (eds.). 1983. *Neighborhood Policy and Planning.* Lexington, MA: Lexington Books.

Dake, K. 1991. Orienting dispositions in the perception of risk: An analysis of contemporary worldviews and cultural biases. *Journal of Cross-Cultural Psychology* 22, 61-82.

Dietz, T., P. Stern, and G. Guagnano. 1998. Social structural and social psychological bases of environmental concern. *Environment & Behavior* 30, 450-471.

Douglas, M. and A. Wildavsky. 1982. *Risk and Culture: An Essay on the Selection of Technological Environmental Dangers*. Berkeley, CA: University of California Press.

Dunlap, R. and A. Mertig. 1997. Global environmental concern: An anomaly for postmaterialism. *Social Science Quarterly* 78 (1), 24-29.

Eckberg, D. and J. Blocker. 1996. Christianity, environmentalism and the theoretical problem of fundamentalism. *Journal for the Scientific Study of Religion* 35, 343-355.

Edelstein, M. 1988. *Contaminated Communities: The Social and Psychological Impacts of Residential Toxic Exposures*. Boulder, CO: Westview Press.

Flynn, J., P. Slovic, C. K. Mertz. 1994. Gender, race and perception of environmental health risks. *Risk Analysis* 16, 1101-1108.

Flynn, J., W. Burns, C. K. Mertz, and P. Slovic. 1992. Trust as a determinant of opposition to a high-level radioactive waste depository: Analysis of a structural model. *Risk Analysis* 12, 417-429.

Folkman, S. and R. Lazarus. 1988. The relationship between coping and emotion: Implications for theory and research. *Social Science and Medicine* 26, 309-317.

Freudenberg, N. and C. Steinsapir. 1991. Not in our backyards: The grassroots environmental movement. *Society and Natural Resources* 4, 235-245.

Furnham, A. and H. Steele. 1993. Measuring locus of control: A critique of general, children's, health- work-related locus of control questionnaires. *British Journal of Psychology* 84, 443-479.

Gallagher, W. 1993. *The Power of Place: How Our Surroundings Shape Our Thoughts.* New York: Poseidon.

Galster, G., K. Metzger and R. Waite. 1999. Neighborhood opportunity structures of immigrant populations. *Housing Policy Debate* 10, 395-442.

Gardner, H. 1995. *Leading Minds: An Anatomy of Leadership*. New York: Basic Books.

Greenberg, M. 1999. *Restoring America's Neighborhoods: How Local People Make a Difference*. New Brunswick, NJ: Rutgers University Press.

Greenberg, M. 1998. Understanding the civic activities of residents of inner city neighborhoods: Two case studies. *Urban Geography* 19, 68-76.

Greenberg, M. 1997. High-rise public housing, optimism, and personal and environmental health behaviors. *American Journal of Health Behaviors* 21, 387-398.

Greenberg, M. and D. Schneider. 1996. *Environmentally Devastated Neighborhoods: Perceptions, Policies, and Realities*. New Brunswick, NJ: Rutgers University Press.

Halberstam, D. 1969. *The Best and the Brightest*. Greenwich, CT: Fawcett.

Holli, M. 1999. *The American Mayor: The Best & Worst Big-City Leaders*. University Park, PA: The Pennsylvania State University Press.

Inglehart, R. 1977. *The Silent Revolution: Changing Values and Political Styles among Western Publics*. Princeton, NJ: Princeton University Press.

Inglehart, R. 1995. Public support for environmental protection: Objective problems and subjective values in 43 societies. *Political Science and Politics* 15, 57-71.

Jones, B. D. (ed.). 1989. *Leadership and Politics: New Perspectives in Political Science*. Lawrence, KS, University of Kansas Press.

Keating, W. and N. Krumholz (eds.). 1999. *Rebuilding Urban Neighborhoods: Achievements, Opportunities and Limits*. Thousand Oaks, CA: Sage Publications.

Keyes, L., R. Bratt, A. Schwartz and A. Vidal. 1996. Networking and nonprofits: Opportunities and challenges in an era of federal devolution. *Housing Policy Debate* 7, 201-229.

Ladd, E. 1996. The data just don't show erosion of America's social capital. *Public Perspective*. June/July, 1.

Lazarus, R. 1991. *Emotion and Adaptation*. New York: Oxford University Press.

Leavitt, J. and S. Saegert. 1988. The community household: Responding to housing abandonment in New York City. *APA Journal* Autumn, 489-500.

Lewis, P., D. Lowenthal and Yi-Fu Tuan. 1973. *Visual Blight in America.* Washington, DC: Association of American Geographers.

Lin, E. and C. Peterson. 1990. Pessimistic explanatory style and response to illness, *Behavioral Research and Therapy* 28, 243-248.

Metzger, J. 2000. Planned abandonment: The neighborhood life-cycle theory and national urban policy. *Housing Policy Debate* 11, 7-40.

Miller, S., M. Rein and P. Levitt. 1990. Community action in the United States. *Community Development Journal* 25, 356-368

Moynihan, D. 1996. *Miles to Go: A Personal History of Social Policy*. Cambridge, MA: Harvard University Press.

Nyden, P., M. Maly and J. Lukehart. 1997. The emergence of stable racially and ethnically diverse urban communities: A case study of nine U.S. cities. *Housing Policy Debate* 8, 491-534.

Pearlin, L., M. Lieberman, E. Menaghan and J. Mullan. 1981. The stress process. *Journal of Health and Social Behavior* 22, 337-356.

Peters, E. and P. Slovic. 1995. The role of the affect and worldviews as orienting dispositions in the perception and acceptance of nuclear power. *Decision Research Report* 95-1. Eugene, OR: Decision Research, Inc.

Pew Research Center for the People and the Press. 1998. *Deconstructing Distrust: Americans View Government*. Washington, D.C.: Pew Research Center.

Pew Research Center for People and the Press. 1999a. *Retro-Politics.* Washington, D.C.: Pew Research Center.

Pew Research Center for People and the Press. 1999b. *Trust and Citizen Engagement in Metropolitan Philadelphia: A Case Study*. Washington, D.C.: Pew Research Center.

Piller, C. 1991. *The Fail-Safe Society: Community Defiance and the End of American Technological Optimism*. Berkeley, CA, University of California Press.

Powell, W. 1990. Neither market nor hierarchy: Network forms of organization. *Research in Organizational Behavior* 12, 295-336.

Putnam, R. 1996. The strange disappearance of civic America. *The American Prospect* Winter 24, 34-48.

Putnam, R. 1998. Social capital: Its importance to housing and community development. *Housing Policy Debate* 9(1), v-viii.

Ross, C. and J. Mirowsky. 1999. Disorder and decay: The concept and measurement of perceived neighborhood disorder. *Urban Affairs Review* 34, 412-432.

Rusk, D. 1999. *Inside Game, Outside Game: Winning Strategies for Saving Urban America.* Washington, D.C.: The Century Foundation.

Sampson, S., R. Raudenbush and F. Earls. 1997. Neighborhoods and violent crime: A multilevel study of collective efficacy. *Science* 277, 918-924.

Sanoff, H. 1975. *Seeing the Environment: An Advocacy Approach*. Raleigh, NC: Learning Environments.

Scheier, M. and C. Carver. 1985. Optimism, coping, and health: Assessment and implications of generalized outcome expectancies. *Health Psychology* 4, 219-247.

Schwartz, S. 1973. Normative explanations of helping behavior: A critique, proposal, and empirical test. *Journal of Experimental Social Psychology* 9, 349-364.

Schwartz, S. 1977. Normative influences on altruism. In L. Berkowitz (ed.), *Advances in Experimental Social Psychology* 10, 221-279. New York: Academic Press.

Shlay, A. 1999. Influencing the agents of urban structure: Evaluating the effects of community reinvestment organizing on bank residential lending practice. *Housing Policy Debate* 35, 247-278.

Snow, D., E. Rochford, S. Worden and R. Benford. 1986. Frame alignment processes, micromobilization and movement participation. *American Sociological Review* 51, 464-481.

Spring, D. and E. Spring (eds.). 1974. *Ecology and Religion in History*. New York: Harper and Row, Inc.

Stack, C. 1974. *All Our Kin: Strategies for Survival in a Black Community*. New York: Harper and Row.

Stern, P., T. Dietz, T. Abel, G. Guagnano, and L. Kalof. 1999. A value-belief-norm theory of support for social movements: The case of environmentalism. *Human Ecology Review* 6 (2), 81-97.

Stone, A. and J. Neale, 1984. New measure of daily coping: Development and preliminary results. *Journal of Personality and Social Psychology* 46, 892-906.

Temkin, K. and W. Rohe. 1998. Social capital and neighborhood stability: An empirical investigation. *Housing Policy Debate* 9(1), 61-88.

Wills, G. 1999. *A Necessary Evil: A History of American Distrust of Government*. New York: Simon and Schuster.

W. K. Kellogg Foundation. 1999. Grassroots leaders: Growing healthy and sustainable communities. www.wkkf.org/publications/grass-roots_521.htm.

Caiçara Communities of the Southeastern Coast of São Paulo State (Brazil): Traditional Activities and Conservation Policy for the Atlantic Rain Forest

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Abstract

This paper addresses the traditional resource use by Caiçara communities, their means of subsistence and the critical aspects related to their survival within a restrictive protected area — the Estação Ecológica de Juréia-Itatins (EEJI). This study is based on historical and social data and its approach is ethnographic and ethnoecological. Caiçara communities descend from the intermarriage of Portuguese colonists, Indian populations and African slaves. Traditional activities linked to the ecological calendars are analyzed within economic and environmental policy contexts. The response of Caiçara subsistence economy to external changes is also appraised. The EEJI is located on the southeastern coast of São Paulo State and is covered by the Atlantic Rain Forest. This forest is a severely endangered tropical and subtropical ecosystem, due to 500 years of demographic and urban growth. Knowledge of the historical background and the comprehension of the Caiçara resource and land use practices should be integrated to policies of preservation of the Atlantic Rain Forest and, particularly to EEJI management plans.

Keywords: *Caiçara, Atlantic Rain Forest, ethnoecology, traditional communities, Juréia-Itatins*

Introduction

This study was carried out on *Caiçara* communities living in a protected area — the *Estação Ecológica de Juréia-Itatins* (*Juréia-Itatins* Ecological Reserve, *EEJI*) — situated on the southeastern coast of São Paulo State, Brazil. The term *Caiçara* is commonly used to describe artisanal fishermen or agriculturists of mixed African, European and Native South American descent (Diegues 1983; Mussolini 1980; Ribeiro and Neto 1992), living within the Atlantic Rain Forest ecosystem.

Estação Ecológica is a Brazilian official term defining a category of protected areas solely devoted to the preservation of natural ecosystems. The goals of the *Estação Ecológica* are to protect integrally 90% of the area, and to dispose 10% to scientific, basic investigation and to environmental education (Nogueira-Neto 1991; Por and Imperatriz-Fonseca 1984). Human settlement is not allowed inside this protected area (Brito 1998), however, 120 *Caiçara* families live within the *Estação Ecológica de Juréia-Itatins.* The government decree creating the reserve stipulates that the entire area should eventually be public (São Paulo 1995), and presently less than 20% of the area under protection has been expropriated by the São Paulo State government.

The Atlantic Rain Forest was the first Brazilian ecosystem to be settled by European colonists, just after the discovery of Brazil (Mussolini 1980). Before 1500, the Atlantic Rain Forest was continuously distributed along the Brazilian coast from Rio Grande do Norte to Rio Grande do Sul States, covering 1.1 millions km^2 (Capobianco and Lima 1997). Presently, Atlantic Rain Forest is still found in only 8.8% of its original area. Most remnant forested areas are under pressure and are still destroyed at elevated rates (Dean 1996).

The development of *Caiçara* culture is closely tied to the history of occupation of the Brazilian southeastern Atlantic Rain Forest. From the contact between Atlantic Rain Forest Indian and the European cultures (during expeditions to seize Tupinambá Indians for slave labor) a new culture has emerged. The first descendants from European, Indian, and later, African populations, were called "mestizo" by Portuguese colonists (Mussolini 1980; Ribeiro 1995; Willems and Mussolini 1966). The *Caiçara* culture has its origins in those "mestizo" populations (Cunha 1998; Queiroz 1969).

Today, the *Caiçara* concept is linked to a social group composed of people living close to the Rain Forest, with subsistence strategies tied not only to ecological factors (Begossi and Richerson 1992), but also to political-economic constraints (Marcílio 1986; Mussolini 1980). For instance, some

of their main activities, such as shifting cultivation or swidden agriculture, are an Indian heritage representing adaptations to household mobility and a subsistence economy (Candido 1964).

This broad characterization reflects a great social diversity on a regional level and, as is, it could include other traditional communities in Brazil. However, the term *Caiçara* has been strictly employed to describe coastal communities of São Paulo State and Lower Vale do Ribeira region (Brito and Vianna 1992; Diegues 1983), while inland inhabitants are referred to as Caipira (Cândido 1964; Queiroz 1983). Additionally, both *Caiçara* and *Caipira* peoples are also generally designated as "peasants" or "traditional populations" (Adams 1998; Martins 1981; Queiroz 1973; Wolf 1970).

Caiçara communities in *EEJI* are herein referred to as a defined social group whose related families live close together in household units, a central element of the social organization system (cf., Candido 1964; Mussolini 1980). Other attributes that characterize *Caiçara* are: 1) kinship or *compadrio* cooperation (cf. Moran 1974, 142) in economic activities; 2) slash and burn agriculture or shifting cultivation (*coivara*) as the main subsistence activity; 3) unlike Indian communities, the influence of regional political-economical context and the external trade in the *Caiçara* social dynamic and subsistence systems (Begossi 1997a, 1997b, 1997c).

The São Paulo State government has considered the *Caiçara* population within *EEJI* as "traditional" (São Paulo 1991). This term refers to those inhabitants with social and historical ties to the region, who depend mainly on the use of the ecosystem as means of subsistence (Orlove and Brush 1996; Vianna 1996). It is employed politically to mean that human presence is compatible with preservation goals (Vianna 1996).

In Brazil, there is the tendency to dichotomize discussions (Adams 1998, 299) on permanence and the compatibility of traditional inhabitants' activities with conservation goals of protected areas (cf., Diegues 1994; Hogan 1995; Oldfield and Alcorn 1987). In the case of *EEJI*, the controversial issue concerns *Caiçara* practices such as hunting, slash and burn agriculture and artisanal fishing. Hunting, for instance, has been considered incompatible with restricted protected areas (e.g., Peres 1994; Redford 1993; Redford and Robinson 1987), particularly in the Atlantic Forest (Martuscelli et al. 1994). On the other hand, the *Caiçara's* presumed knowledge of and balanced relationship with the Atlantic Rain Forest have both been used as an argument for legalizing settlements of these traditional populations within restrictive protected areas (Diegues 1994; Orlove and Brush 1996). However, empirical evidence of the way *Caiçara* subsistence strategies affect the Atlantic Rain Forest is still scarce (Adams 1998).

Adams (1998) shows that from the 30s to the 60s most of the research about *Caiçara* were sociological and social anthropological. Human ecology research on *Caiçara* grew only after the 80s, motivated by political debates and conflicts. Some of these studies revealed the rational aspects of natural resource use by *Caiçara*, through incorporation of microeconomic models (Begossi 1992, 1993, 1997a, 1997b, 1997c).

The relationship between *Caiçara* and the Atlantic Rain Forest ecosystem will always be complex. First, since colonial times, increasing exploitation and human settlement have destroyed the Atlantic Rain Forest. Second, despite the maintenance of their traditions, *Caiçara* have always been part of a broader economic scenario (Vale do Ribeira). While the validity of the first argument is well established, the second one is supported by this study. Final considerations deal with cultural and environmental issues for the conservation of the Atlantic Rain Forest.

Methods

Study Area

The *Estação Ecológica de Juréia-Itatins (EEJI)* is located on the southern coast of São Paulo State (24˚30'S, 47˚15'W) on Vale do Ribeira region. It has an area of 798.30 km^2 comprising Iguape, Peruíbe, Itariri and Miracatu municipalities (Figure 1). The *Estação Ecológica da Juréia* was created in 1980 by the federal government to produce a buffer zone for a planned nuclear power plant (that has never been built), embracing 230.00 km^2 of flood plain areas (Nogueira-Neto 1991). In 1986, after strong lobbying by environmentalists, those areas and the Itatins Mountains were incorporated into the *Estação Ecológica de Juréia-Itatins.*

The *EEJI* encompasses a portion of the Atlantic Rain Forest ecosystem enclosed between two mountainous massifs (Catharino and Olaio 1990; Martuscelli et al. 1994): the Serra da Juréia on the southern coast, reaching altitudes of 800m, and the Serra dos Itatins, where the highest peak reaches 1,350 m. These massifs are separated by 40 km of lowland (Por 1986; Por and Imperatriz-Fonseca 1984). An association of sand dune, mangroves, swamp forest, slope forest, and mountain top vegetation formations characterizes the Atlantic Rain Forest. Together they form an ecological continuum of great importance to the maintenance of this ecosystem equilibrium (Rizzini 1979; Viana 1995).

Almost 50% (364.00 km^2) of *EEJI* area is covered by the flood plain of the Una do Prelado River. This river belongs to Ribeira de Iguape Basin, considered the last remaining area covered by swamp forest in São Paulo State (Por 1996). The coastal flood plain areas have been the most strongly affected habitat by human occupation, since the first settlements 8,000 years ago (Dean 1996).

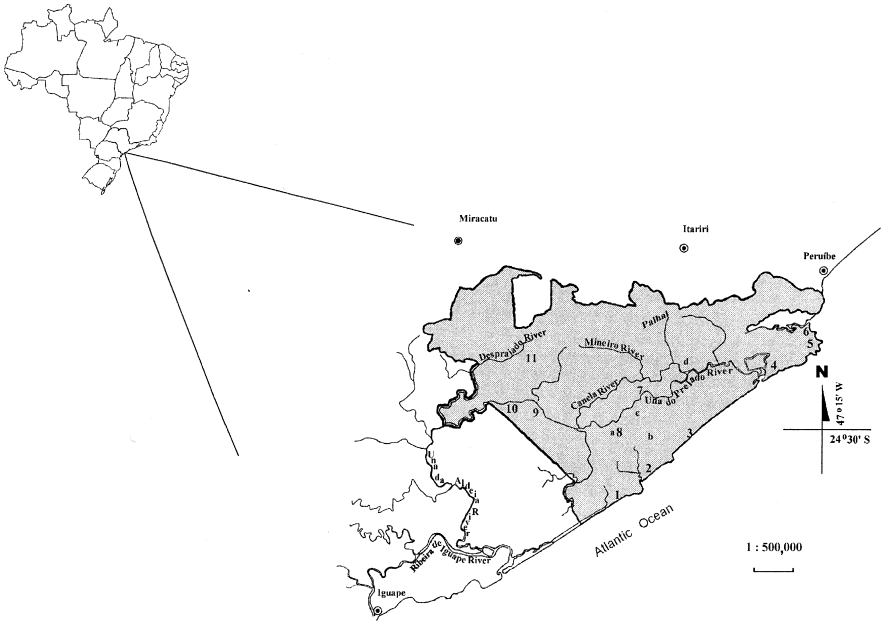

Figure 1. *EEJI localization and Caiçara communities*. Praia da Juréia (1), Rio Verde (2), Praia do Una (3), Vila Barra do Una (4), Parnapuã and Praia Brava (5), Guarauzinho (6), Rio Comprido (7), Cachoeira do Guilherme (8), Aguapeú (9), Rio das Pedras (10) and Despraiado (11). Some old settlements: Vila Cachoeira do Guilherme (a), Pogoçá (b), Descalvado (c), Palhal and Pimenteira (d).

Compared to the immediate past, when only native Indians inhabited the Atlantic Rain Forest, an intense destruction took place in a short period of time after European colonization. In São Paulo State, great deforestation took place in favor of cattle ranching, coffee plantations and immigrants' settlements (Capobianco and Lima 1997; Martins 1981).

The Atlantic Rain Forest ecosystem is considered a hot spot for biodiversity conservation (Primack 1995; Hanazaki et al.1996) and local extinction is documented (Brooks and Balmford 1996). In São Paulo State, the remnant natural areas (almost 17,000 km^2) represent only 5% of the original forest cover (Brasil 1996; Capobianco and Lima 1997; SOS Mata Atlântica and INPE 1993). Nowadays, the largest tracts of relatively undisturbed habitat are found along the Serra do Mar slopes on Vale do Ribeira region, where the *EEJI* is located.

Until 1992, there were approximately 1207 people (365 families) living inside the *EEJI*. Out of these, policy makers classified 120 *Caiçara* families as "traditional inhabitants" (São Paulo 1991). It is on the Una do Prelado flood plain areas that most of the *Caiçara* people are distributed in family units. Population densities in those areas reach 0.32 inhabitants per km^2, forming small aggregations known as "communities" or "*bairros*". Figure 1 shows localization of these communities, where Despraiado and Vila Barra do Una include other non-traditional families. These came from other areas of the country and were not included in this study.

"Communities" or "*bairros*" are usually employed by policy makers as designations for artificial social aggregations, in order to identify those groupings. However, *Caiçara* recognize themselves as belonging to *apovoados* (small communities) when they refer to their past history of social and geographical organization. Thus, both communities and *apovoados* are terms herein considered synonyms.

Data Collection

This paper is based on historical and social data collected between 1989 and 1996, using an ethnographic and ethnoecological approach. I investigated changes in subsistence activities under different economic and historical contexts. The analysis is derived from information recorded from *Caiçara* informants, some of them still living in *EEJI*, and from direct observations.

Historical data were obtained from oral tradition and, when possible, compared to official documents and publications. This method allowed me to reconstruct the history of current inhabitants' predecessors and the historic and economic past of Vale do Ribeira. *Caiçara* recognize five major historical milestones (as presented in Table I). However, memory should always be considered selective, and the informant establishes his or her own shortcuts (Cunha and Rougeulle 1989; Peoples and Bailey 1988; Vansina 1985). The examination of official documents provided a chronological sequence for the facts reported by informants.

I assessed the *Caiçara* pattern of social organization through interviews and direct observation. The ethnoecological data consisted of descriptive records of animal and plant species names and of main labor tasks, such as farming, gathering, hunting and fishing, with respect to the ecological calendars.

After interviewing dozens of *Caiçara*, I selected twenty-one individuals as key informants. Then I conducted semi-structured, formal and informal interviews, through open-ended questions, followed by participant observation and sometimes by group interviews. I also accompanied informants on some of their forest incursions, whenever possible. The selection of key informants and the accuracy of ethnographic data based on oral traditions are based on the meth-

odologies of Bernard et al. (1984), Goward (1984), Holy (1984), and Vansina (1985).

The ethnoecological interviews and surveys were conducted under the assumption that a system of cognitive categories reflects a shared folk culture of utilitarian behavior (Madi and Begossi 1997; Netting et al. 1995, 56; Paz and Begossi 1996). This approach has been criticized as an oversimplification of the folk system (Hunn 1982; Toledo 1992). However, I decided to employ it in this research because it was never my intention to go beyond the understanding of ecological resource and land use by the *Caiçara*. Here I emphasize the analysis on *Caiçara* representation of nature in relation to their subsistence needs (c.f., Ellen 1989) and some conflictive points to conservation goals.

Results and Discussion

Caiçara Culture and Origins of the Juréia-Itatins Settlement

Some events — like historic, politic and social milestones — have great influence on the different strategies adopted by the *Caiçara*, as summarized in Table 1. This table provides a chronological framework to position practices, social organization and their changes. These events are related to the past of the Vale do Ribeira, where Juréia history is embedded.

The *Caiçara* origins in *EEJI* date back to the 16th century, when Ribeira de Iguape River became the main route for inland incursions aimed at the recruitment of Indian workmen, especially for gold mining activities. Iguape was one of the first villages founded along the Brazilian coast at this time, soon becoming a very rich village through gold mining activities and later through the advent of rice trade (Petrone 1966; Teleginski 1993).

The Iguape port was the central place through which products were bought in bulk and sent to Santos and Rio de Janeiro to be exported to Europe. Between the 17th and 18th centuries, colonists seeking gold and other precious metals are believed to have explored the coastal plain forest of *EEJI*. During the first half of the 19th century, it also became attractive to settlement because of the suitability of lands for rice culture and facility for goods transport through the Una do Prelado (or Comprido) River. Remnants of this period can be seen in the ruins of old rice mills, formerly operated through slave labor, which are numerous in *EEJI*.

Before the late 19th century, dispersed settlements are believed to have begun along the Serra dos Itatins valley, and chiefly on the Una do Prelado flood plain. During the "Time of the Ancients," those settlements were initiated by single nuclear families, through forest clearing areas known today as Palhal, Pimenteira, Descalvado and Pogoçá (Figure 1). The flood plain has allowed short-term subsistence crops such as manioc, beans, maize, and rice farming. With the intensification of rice farming to supply Iguape regional market, the flood plain areas attracted more families. Income resulting from agricultural surplus allowed exchange, mainly to obtain salt, sugar, coffee, kerosene, and clothes (Candido 1964; Marcilio 1986; Willems and Mussolini 1966).

Most Juréia inhabitants' predecessors were born in Juréia region or came from bordering localities; thus, all 120 *Caiçara* families are indigenous to Vale do Ribeira. The first *apovoados* in Juréia were initially based on one main family. They were composed of relatives, living in different areas, presently known as communities or *bairros* — Praia da Juréia, Praia do Rio Verde, Praia do Una, Vila Barra do Una, Praia do Parnapuã, Praia Brava, Guarauzinho, Rio Comprido (or Rio Una do Prelado), Cachoeira do Guilherme, Aguapeú, Rio das Pedras and Despraiado (Figure 1). As can be seen in Table 1, the changes in the politics and in the regional economy have greatly influenced the community dynamics (mobility of households, decrease in land access, individualization of activities and interests, etc.) and subsistence activities based on ecological calendars (prohibition and restriction on hunting, farming and fishing).

Social Organization and Land Tenure

The old *apovoados*, presently known as communities or *bairros*, consisted of several related households linked by kinship relations. The central core of the *apovoados'* organization was the household, which was characterized by the nuclear family (the parents and their children) or the extended family. Within these *apovoados*, social relationship took place at the neighborhood level, where households were clustered. Higher social organization levels occurred between *apovoados*, and between these and the external environment. These relationships took place through goods-sharing, agricultural *mutirões* and exchange among relatives, and also during religious and local festivals. In the past, the *apovoados* relationship with the external environment was based on the sale of agricultural surplus.

Because of the high land availability and the surplus of rice farming, the practice of agricultural *mutirões* was very common until the beginning of 20th century (Table 1). *Mutirão* is a large-scale mutual help organization, where all "neighbors" participate, and it is one of the most expressive social activities in *Caiçara* culture (Willems and Mussolini 1966, 59). It comprises group activities for cutting, cleaning and cropping, associated with local festivals like *fandango*. It allows intensive relationship within and between households and communities, through which information exchange and marriages occur (Marcílio 1986; Mendonca et al. 1993; Mourão 1971; Mussolini 1980).

Figure 2 summarizes social relationships, showing a general model for the *EEJI Caiçara* communities (Figure 2a). One illustrative example is that of Cachoeira do Guilherme community (Figure 2b), where most social and ritual events used to occur.[2] Until 1995, there were 11 families inhabiting it. Some of its members, represented in Figure 2b by different circle patterns, originated from other communities such as Aguapeú, Rio Comprido, and Praia do Una. These communities still maintain strong connections today. Despite living in different and distant areas, families move for participation on local festivities, religious commemorations, marriages or agricultural *mutirões*. Nevertheless, despite the fact that the entire regional *Caiçara* population is encompassed within *EEJI* limits, the boundary of social and economic relationships go beyond them and also comprehend broader networks than the ones that can be initially assessed.

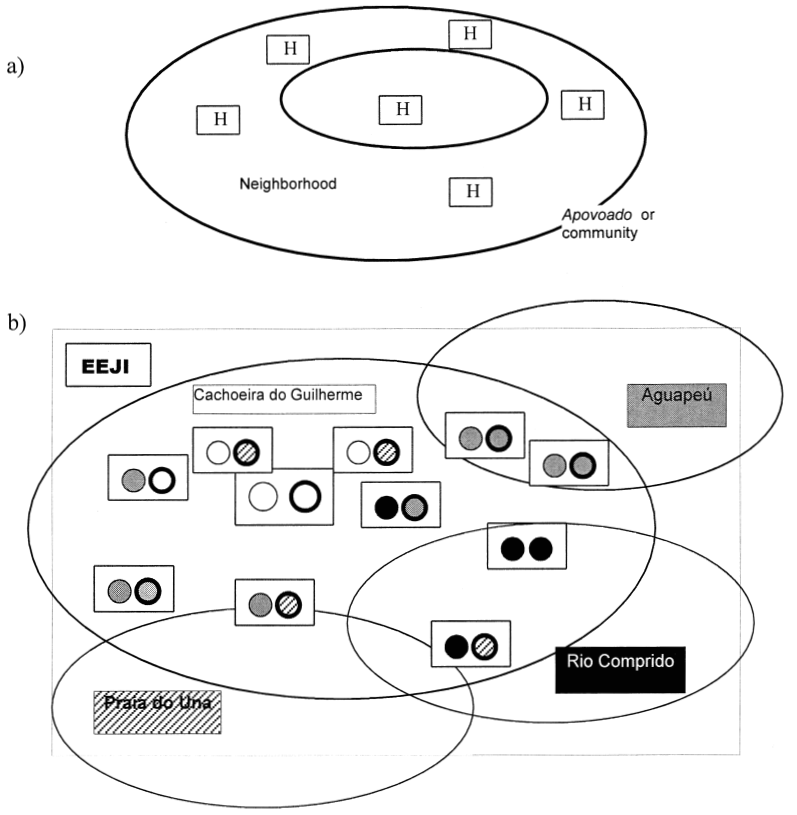

Figure 2. *Spatial model of the Caiçara social organization (a), focusing on the social network between Cachoeira do Guilherme and three other communities (b).* a) In the center of this system is the household (H) and the network is represented by the ring-shaped line. The household can be also related to others forming the "neighborhood". All of them form the *apovoado* or community. b) Each household is herein represented by the parents (e.g., O**O**). The larger household represents the head-leader. Each pattern of circle is associated with the origin of the members from Cachoeira do Guilherme community. They are Aguapéu, Rio Comprido, and Praia do Una, respectively represented by gray, black and striped circles. The relationships occur within (overlapping circles) and out EEJI limits (dotted line).

The main household characteristics are autonomy (Candido 1964) and production returned to the subsistence of the family (Wolf 1970). If the land is available and population density is low, autonomy allows familiar units mobility and under this condition shifting cultivation takes place (Netting 1993). This means that the household can migrate to any available area, as far from its original place as possible, without abandoning it completely or losing contact with neighboring households. Such mobility has also evolved historically as a response to market demands (Netting 1993) and conservation policies.

In *EEJI*, no traditional family owns the land, as has been reported for other *Caiçara* communities (Marcilio 1986; Willems and Mussolini 1966). About 70% of the traditional inhabitants are squatters, or *posseiros*, born in the area or having lived there for a long time, but not possessing legal ownership. The remaining 30% are caretakers, or *caseiros*, who live in the area but work for another *posseiro* or for a legal owner (São Paulo 1991; Sanches 1997).

This land tenure condition can be better understood considering *Caiçara* history. At a time defined as the "Time of the Ancients" (Table 1), the virgin forest belonged to no one, and all subsistence activities (farming, hunting, fishing) were practiced concomitantly. Because resources and land were easily available in the past, it was possible for them to explore the environment, as well as to move across different open areas. This is supported by Candido's (1964) and Netting's (1993) discussion about household mobility.

This way of life changed in response to five events: a) the end of rice trade in Iguape at the end of the 19th century, b) the emergence of palm heart (*palmito*, *Euterpe edulis*) and the timber called *caxeta* (*Tabebuia cassinoides*) exploitation since 1950 in the Vale do Ribeira region, c) increasing land speculation from the 1970's on, d) the threat of the construction of a nuclear power-plant, and e) the creation of *EEJI* in 1986.

One of the main consequences of these changes, summarized in Table 1, was on land use. From the end of the 19th century on, land purchase and appropriation by large landowners took place in Vale do Ribeira. There was a decrease of land availability for farming and crop rotation, and no more surplus seeds were produced for sale. In *EEJI*, there was an increase of *Caiçara* population, caused by the

Table 1. Changes in subsistence activities, and social and economical related issues through time in *Caiçara* communities of EEJI, Sao Paulo State, Brazil.

Events **Activities and general issues**	**Time of the Ancients ? - 1930/1940**	***Caxeta* and *Palmito* industry 1950-1970**	**Speculation on property development 1970-1980**	**NUCLEBRAS 1980-1986**	***EEJI* 1987**
land tenure	no	no	no	no	no
land availability	high	low and expropriation threat	low and expropriation threat	low and expropriation threat	low and expropriation threat
Resources availability	yes	less	less	less	less
land conflicts	start	high	high	high	related to legal permanence
settlement	first nuclear family units and dispersed; small communities or *apovoados*	more concentrated	dispersed	dispersed	dispersed or communities smaller than before; low densities
social organization	household + *apovoados*	isolated household	isolated household	isolated household	household; the *apovoados* are called "community" or "*bairro*"
household mobility	yes	less intense; sometimes only men leaving	yes	some leave the area; some return to it	some leave the area; some return to it
social relationships	intense interrelation; household, neighbors and apovoados	incipient relationships	household dependent on new land owner	tense relationships; hierarchies created due to the hiring acquisition of some persons as forest rangers	tense relationships; hierarchies created due to the hiring acquisition of some persons as forest rangers
hunting	yes	yes	yes	yes but prohibited	yes but prohibited
fishing	artisan; semi-industrial in other regions	artisan; semi-industrial and industrial in other regions	artisan; semi-industrial and industrial in other regions	artisan; semi-industries and industrial in other regions	artisan, but limited
slash and burn agriculture	yes	partially abandoned	partially abandoned	yes but limited by law	yes but limited by law
fallow periods	yes	decrease	decrease	decrease	decrease
mutirão	yes	temporary abandonment	resumed but limited	reduced or interrupted	reduced or interrupted
agricultural surplus	yes; sold and exchanged on regional market	less than before and exhanged within community level	less than before and exchanged within community level	reduced	none
ecological calendars	yes	yes	?	only for agriculture, exploitation and fishing	only for agriculture, exploitation and fishing

displacement of settlers from bordering localities. Families of relatives from old *apovoados*, which were living in these localities, migrated mainly to Una do Prelado flood plain.

Since the 1950's, in the "*Caxeta* and *Palmito* industry" period, private enterprises (such as the Johann Faber pencil industry) bought large areas on Una do Prelado River flood

plain to exploit those plant species. *Caiçara* families began to work for these companies, abandoning agriculture for about 20 years, due to the intensive activity related to cutting and transportation of *palmito* and *caxeta*. Since the 1970's, tourism was vigorously promoted besides the increasing land speculation in EEJI. Land conflicts became more intense (Mourão 1971; Paz and Begossi 1996) and also violent (Siqueira 1984), due to the displacement of Caiçara settlers. The palmito and caxeta exploitation and land conflicts were only interrupted with the plans for the construction of the nuclear power plant and the creation of the *Estação Ecológica da Juréia* in 1980, later called *Estação Ecológica de Juréia-Itatins (EEJI)*. There-after, some *Caiçara* people managed to stay in the *EEJI* as squatters or caretakers. But, their old traditional activities (hunting, shifting cultivation and artisanal fishing) became further limited by law, affecting their previous pattern as well as their social relationships. One of the greatest implications of this situation is associated with farming (see below).

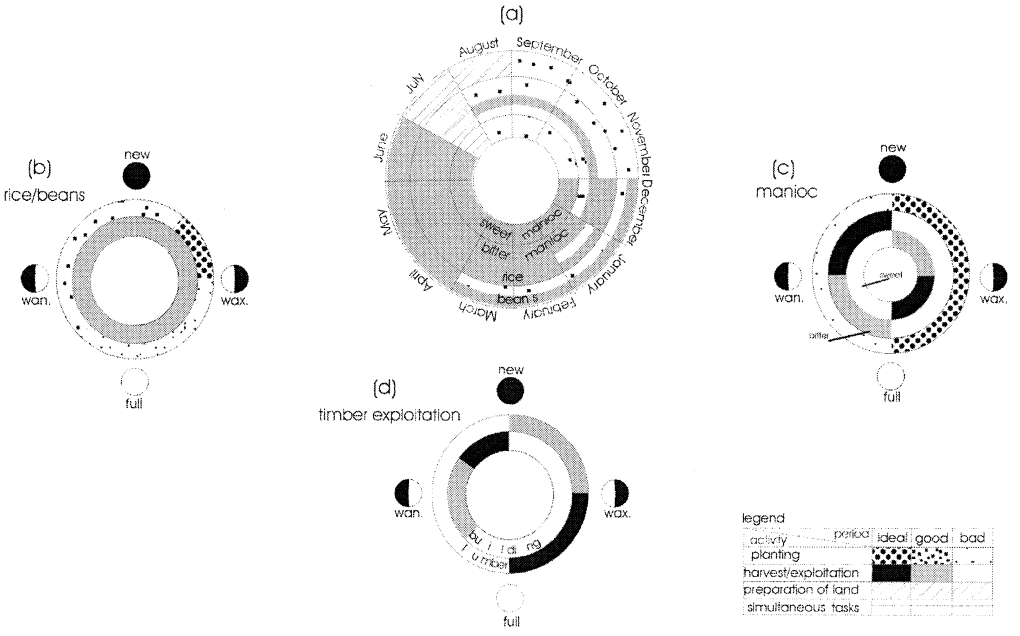

Figure 3. *Agricultural calendar*. a) Annual calendar; b) and c) moon calendar for planting and harvest; d) moon calendar for timber exploitation.

Subsistence Activities and Ecological Calendars

Through ethnobiological inquiries, I recorded almost 300 avian and 40 mammalian species (except small rodents and bats), 65 fishes and 130 tree species (Sanches 1997) associated with subsistence activities. The knowledge of reproductive behavior of many animals and the location of their habitats is important in order to optimize labor tasks. Fishing, timber extraction, gathering (mainly fiber, fruits, and medicinal plants) and farming activities are allowed and still occur in the *EEJI*, but the way these have been performed have changed considerably over time. Below I present a description of *Caiçara* subsistence activities against their respective ecological calendars, as performed in the "Time of the Ancients." I conclude this section with a description of changes in *Caiçara* practices related to historical events.

Regular subsistence activities involved: a) the deep knowledge of the environment as well as ecological and biological aspects of each species and their management (this knowledge was orally transmitted), b) cost-benefit evaluation in decision making (which has varied through time and space as well as decisions on time allocation for these activities), c) the recognition of ecological calendars, with their appropriate months to perform those activities, allowing adequate caloric and protein intakes (Figure 3 and Figure 4), d) employment of available technology (traps and other labor equipment), and e) symbolic aspects such as food taboos, beliefs and myths.

Informants reported farming as the main subsistence activity. Through farming, the *Caiçara* could ensure calories in their diet; they grew annual and perennial food crops, using the slash and burn technique or swidden-fallow agroforestry (coivara) system. This system is still widespread throughout tropical forest habitats in the world (Boserup 1987), among different societies as Caboclos in Amazonia (McGrath 1987; Moran 1974; Murrieta et al. 1989). Farming was reported by the Caicara as the most labor demanding activity year-round. To maximize chances of good crops, the Caiçara followed the agricultural calendar (Figure 3). After choosing a suitable place, small forested areas were cleared (mainly from April to June) for swidden plots (less than 0.5 hectare per household). Then, the forest was burned in the dry season (July and August) and cropping took place with a consortium of different species.[3] As it can be seen in Figure 3, each crop had its best time to plant and harvest. After planting, the tasks were reduced to garden keeping (i.e., grass cutting and weeding) and, after harvest, manufacturing of cer-

tain goods like the manioc flour and rice threshing. With the end of the harvest, gardens were abandoned to fallow, and the cutting began in a new area or in old gardens.

The fallow period (*pousio*) refers to the time the area is left to rest (*descanso*) after the harvest. The length of the fallow is fundamental in the slash-and-burn system, because it allows the forest and soil nutrients to recover,[4] through vegetation succession in tropical areas (Boserup 1987). The *Caiçara* realized the need for a fallow period when production decreased. The period of rest varied from 5 to 10 or more years, according to land characteristics and crop production (for *Caboclo* and Indian farming in the Amazon, see Balée 1989; Brondízio and Siqueira 1997; Brondízio et al. 1994; Meggers 1954; Moran 1974, 1990; for *Caiçara* agriculture, see Jovchelevich and Canelada 1992; Hanazaki et al. 1996; for different regions of the world, see Conklin 1969; Geertz 1969; Johnson and Earle 1987; Rappaport 1968).

Physical and historical conditions were considered when it was time to choose an area to crop. Physical conditions were based on indicators like forest age (stage of succession) and soil properties. In a general way, *Caiçara* recognized the best area for planting as the "virgin" forest. The man who performed felling in order to till the plot acquired the genuine right to the land (Willems and Mussolini 1966, 25). Thus, for the *Caiçara*, the area belonged to the one who first farmed it. According to the kinship level, this "owner" could assign planting rights to relatives from the same or other *apovoados*. [5]

The agricultural calendar was also based on the moon phases. They were crucial for farmers in order to guarantee the crop at the best time. Figures 3b and 3c show the moon calendar for crop and harvest of rice and bean (*Phaseolus* spp.) and sweet manioc and bitter manioc (*Manihot* spp.). Black and high-stippled patterns represent the moon phases considered by *Caiçara* as ideal to perform each task according to the crop. The moon calendar for timber exploitation (Figure 3d) can be associated with the agricultural calendar. Once the forest was cleared, the timber could be used elsewhere, and according to the moon phase, it would have a specific domestic use. For example, the waxing moon was considered ideal for cutting timber to build houses and paddled canoes. Thus, considering physical and historical land conditions, land availability to swidden, the length of the fallow and the agricultural calendar, labor allocation was optimized and provided for surplus production.

Other subsistence activities were hunting and fishing. They used to provide the most important protein source. Hunting was freely conducted until the 70s (Table 1), and was typically a male individual activity, besides being occasional and opportunistic. The technology employed was mainly firearms with the help of dogs, in addition to traps like *trepeiro, ceva, mundéu* and *laço*.[6] *Trepeiro* is a kind of ladder manufactured with large tree branches, where the hunter can sit and wait for the prey. *Ceva* is a place where food is left as bait to attract animals. *Mundéu* is a small cage trap for smaller species of mammals. *Laço* is a rope set as a loop, and employed to capture the collared peccary (*Pecari tajacu*) or other large game.

Hunting occurred in two situations, during forest incursions (hunting trips) and in the form of "peeking" (*espia*), that is, periodically visiting the bait stations (*cevas*) during labor intervals. Hunting trips were infrequent. However, in both modalities, hunting depended on the best time to plant (Figure 3a), since the main interest was in agricultural production. Another factor influencing this activity was the high responsibility laid upon men to bring meat back to the household every time they left agricultural labor to women's care.

The animal harvest was rigorously considered and limited relatively to spatial and temporal factors. The best places for hunting were considered to be either hilly terrain or seasonally inundated flood plain, both difficult to access. These considerations had implications for the number of possible prey (Table 2).

Hunting could also occur during any intervals between agricultural tasks. Men and women would head to the place where the *cevas* were left, normally near the household, or where the *trepeiros* were set. The *cevas* were usually prepared according to the animal's diet, which could indicate an attempt of pre-selection of prey, related to *Caiçara* taste preferences (Table 2). The most desirable preys were: agouti (*Agouti paca*), armadillos (*Dasypus* spp., *Cabassous tatouay*, *Euphractus sexcinctus*), coati (*Nasua nasua*), capybara (*Hydrochaeris hydrochaeris*), collared peccary (*Pecari tajacu*) and white-lipped peccary (*Tayassu pecari*). Preferred birds were tinamou (*Tinamus solitarius*), black-fronted piping-guan (*Pipile jacutinga*) and toucans (*Ramphastus* spp.).

The ecological calendars associated with hunting activities are represented in Figures 4a and 4b. Figure 4a shows the months when hunting occurred more frequently throughout the year, and Figure 4b considers the moon phases, classified as "ideal," "good" or "bad" for harvest and for trap manufacturing. These calendars incorporated factors such as the inherent seasonal nature of habits and breeding cycles of all involved species known to the *Caiçara*. According to Figure 4a, the period from July to September was not proper for hunting, especially for mammals, because of the birth season. The traps were disarmed and the hunting trips were reduced. This could also be due to the low probability of capturing any animal during wintertime. The reduction of the activity would significantly optimize hunting, or it could represent the need for increased attention to prepare the land for agriculture.

The gardens had a role as baits to attract wild animals for harvest. The manioc gardens were invaded by collared pecca-

Table 2. Main harvested animal species and technologies for hunting.

Common name	Species	Harvest time	n	m (kg)	M(kg)	Technology
agouti	*Agouti paca*	Mar-Jul	1 - 4	5 to 13	3 to 20	firearm/dog/*mundéu*
armadillos	*Dasypus* spp., *Cabassous tatouay*, and *Euphractus sexcinctus*	except Jul	1 - 3	2,7 to 6,3a 3,2 to 6,5b	5 to 15	firearm/dog/*mundéu*
coati	*Nasua nasua*	Mar-Jul	2 - 4	3 to 7,2	10 to 20	firearm/dog/*mundéu*
capybara	*Hydrochaeris hydrochaeris*	Sep-Feb	1	35 to 60	40 to 60	firearm/dog
red brocket deer	*Mazama americana*	Mar-Jul	1	24 to 50	30 to 40	firearm/dog
gray brocket deer	*Mazama gouazubira*	Mar-Jul	1-2	20 to 30	15 to 20	firearm/dog
white-lipped peccary	*Tayassu pecari*	any	1-3	25 to 40	40 to 50	firearm/dog/*mundéu*
collared peccary	*Pecari tajacu*	any	1 - 3	17 to 30	80	firearm/*laço*
tinamou	*Tinamus solitarius*	Mar-Jul	6 - 10	-	12	firearm

a Dasypus novemcinctus; b Euphractus sexcinctus

n = number of specimens taken per hunting trip
m = average weight of adults (Emmons, 1997)
M = amount of butchered meat
"n" and "M" are averages of the values estimated by the informants

ries (*Pecari tajacu*) and by tapirs (*Tapirus terrestris*) where they could be killed. This "hunting garden" allowed the acquisition of animal protein during the performance of agricultural tasks. The term "hunting garden" was proposed by Linares (1976) as a stock of protein and carbohydrate. According to her study, these gardens could have been used by the first horticulturist societies that inhabited coastal areas covered by tropical forests.

Almost all coastal *Caiçara* communities fish in the open sea. Fishing has been a very widespread activity along São Paulo coast since the farming market began to decline in the beginning of the 20th century (Diegues 1983; Mussolini 1980; Silva 1993), but this discussion is beyond the scope of the present study. However, in contrast to neighboring coastal regions, sea fishing does not occur in Juréia (Table 1). There is no manufacture of sea-going canoes, nor is there evidence of such activity in the past. Paddled canoes suited to riverine environments are prevalent. In Juréia there was not an active fishing market,[7] as observed in other places (Mourão 1971), and the use of technologies has been limited to subsistence needs (i.e., fishing rods and fishing traps (*covo*, *pari*) for fishing in rivers). The great majority of families inhabiting the coastal areas employed mainly gillnet (*rede de espera*), cast nets (*tarrafas*) and beach seines (*picarés*).

As was shown for hunting and farming, the annual calendars also indi-

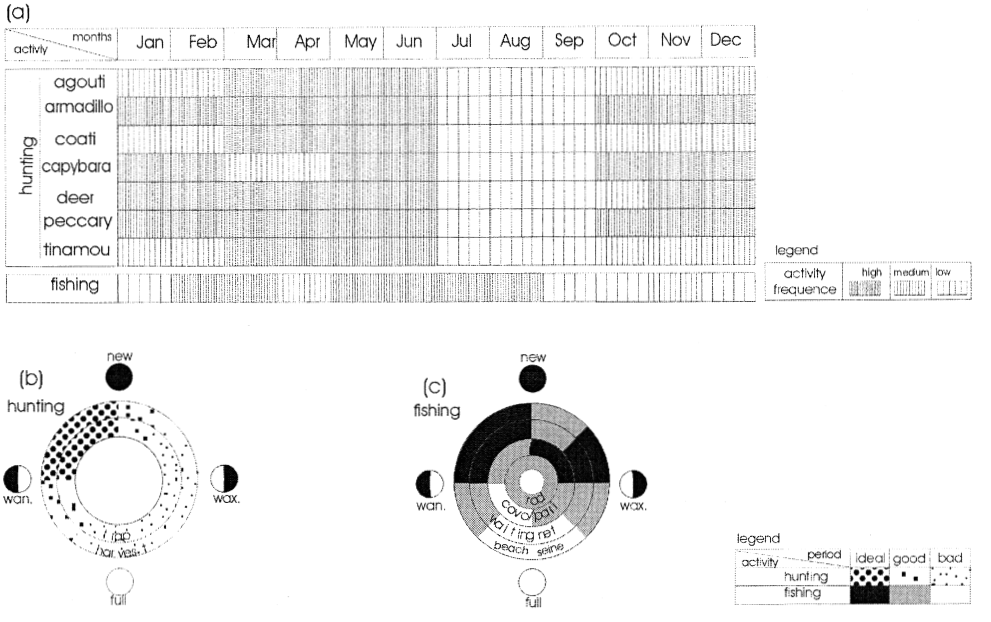

Figure 4. *Hunting and fishing calendar*. a) Annual calendar; b) and c) moon calendar.

cated the best periods for fishing and the kind of technology to be used (Figure 4a and 4c). Figure 4a shows the months when fishing happened more frequently. The *Caiçara* informants refer to the "cold months" (July to August) as the ones providing best quality fishes, despite the fact that the warmer months provide higher productivity to the industrial fishing sector. *Caiçara* fishing activity also increased in these months because of the mullet (*Mugil* spp.), which migrates to the region from May to August.

The employment of different fishing technologies (Figure 4c) followed the lunar calendar. For example, any fishing during full moon was jeopardized by moon brightness. The waxing and the waning moon phases were considered to be bad for fishing, especially with cast nets and beach seines, because both the ebb and full tides during these moon phases are not high enough to allow fish capture on the sea shore (as opposed to what happens during new and full moons). The informants call the former moon phases' tides "seven tides." The new moon was considered the most appropriate or "ideal" period for the use of all technologies in any environment. Like hunting, fishing could also be integrated to farming. For example, fishing traps left on riverbanks were usually visited before lunch and in the late afternoon, and the beach seine was used in the early morning, in late afternoon, or occasionally at night. These periods were not devoted to agricultural labor tasks.

The Historical Events and Changes in Subsistence Activities

As can be seen in Table 1, *Caiçara* subsistence activities have changed since the "Time of the Ancients," due to reduction of the land availability marked by the summarized events. But the most affected activity was farming. While in the past land use and tenure were not limiting factors, the itinerant character of slash-and-burn system was adequate to household mobility. This condition, allied to an intense mutual help organization and a broader network of social relationships inherent to *apovoados* or communities, allowed a surplus production.

After the 1950s, farming and collective activities were partially abandoned in favor of working for private enterprises, and the household economy became dependent on the legal landowners. This situation persisted until the creation of *EEJI*, when farming and some collective activities were recovered, even with legal restrictions imposed by environmental conservation policies and land tenure conditions. The main problem is the instability of legal permanence within the *EEJI*.

Despite this, both fishing and farming may be performed under special authorizations that are issued by technicians according to specific governmental decrees. *Caiçara* are allowed only to cut down the managed forest, usually early second growth (*capoeira*), and to fish in areas delimited by technicians. They still maintain their ecological calendars to perform the tasks and the agricultural *mutirão* still occurs, but less frequently than before. The last one I documented occurred in Juréia six years ago. The need for special authorization, particularly in the case of farming, has led to intensification of cropping over the same area, with the reduction of the fallow period and crop rotation.

On the other hand, hunting has been prohibited since 1967, according to the Brazilian Constitution, and has been reinforced after the creation of the *Estação Ecológica da Juréia* in 1980. In the past the ecological calendar provided control of subsistence hunting, but this probably does not occur now. Although there was an increase in game law enforcement, this does not imply that the local population has abandoned the practice. If hunting still happens — as it probably does — it is a discreet and opportunistic activity undertaken without consideration for any calendar.

Many of the *Caiçara* relatives living outside *EEJI* have looked for jobs in urban centers, hoping to improve the education of their children. Even so, they still maintain their gardens of rice, maize or manioc inside the *EEJI* and whenever possible participate in local festivities, as in the case of Cachoeira do Guilherme community. Technicians have sought to find technical arguments and cooperative solutions with the *EEJI* inhabitants, despite criticism from the scientific community and from the environmental policy makers, both emphasizing the conservation goals of the *EEJI*.

Final Considerations

The *Caiçara* culture continues an important Indian heritage, and its origins can be traced back to the time of the first European contacts. It has evolved over the past five centuries in response to environmental changes associated with the use of the Atlantic Rain Forest. The *EEJI* region, mainly the Una do Prelado flood plain, is a testimony of the numerous forms of management that have been carried out by different inhabitants since pre-colonial times.

The relationship among all subsistence activities — hunting, fishing, farming — has been modified by events such as land conflicts and legal prohibitions, and the creation of *EEJI*. These events also led to changes in traditional cooperative activities, within and between households. It seems that, on the basis of the long history of *Caiçara* use of the Juréia region and the apparent lack of noticeable biological extinction there, the employment of ecological calendars, as in the "Time of the Ancients," would actually lead to a sustainable condition.

Farming has always been a *Caiçara* core activity, struc-

turing household organization and its network of social relationships. Environmental policies have influenced *Caiçara* farming practices mostly by restricting fallow length and land availability. How are the new conditions affecting household adaptation and the land use by *Caiçara*? Only monitoring production levels and their effect on household form and social relationships will allow us to answer this question. In *EEJI* it would be necessary to collect quantitative data on human ecology, such as household form changes (composition and size) associated with subsistence activity changes, and considering time allocation techniques (Netting et al. 1995).

Regulation of agricultural activities should allow the continuity of traditional *Caiçara* practices, such as fallow and crop rotation. Emphasis on alternative economic activities with high valued indigenous species such as palm heart (*Euterpe edulis*) and *caxeta* trees (*Tabebuia cassinoides*) could be an interesting strategy. Legislation ruling their exploitation has already been enforced and scientific research on their management has been undertaken, adding to folk knowledge, which may lead to feasible production of goods from these species without compromising their preservation. It is important to establish ruling strategies pertaining to the use of *EEJI*, taking into consideration both scientific and folk knowledge. In the last two decades, policies creating protected areas without the participation of local populations have generated conflicts and further obstacles for the management of these areas, causing detrimental effects to conservation objectives.

The conservation of the Atlantic Rain Forest also involves an ethical question. Considering that the existence of *Caiçara* communities long predates the creation of *EEJI*, and that the only areas in São Paulo State where some *Caiçara* families are still found are exactly within the Atlantic Rain Forest remnants areas, conservation policies for this ecosystem should also allow the survival and reproduction of these communities. If, on the one hand, science benefits through new discoveries and challenges posed by the diverse organisms from the tropical forest, on the other hand there are people — the *Caiçara* — who still depend culturally and materially on it.

Endnotes

1. e-mail: rosanches@zipmail.com.br
2. It is supposed to have been founded in the 30's and its origin has also a religious purpose influenced by Sátiro da Silva Tavares's father. He and his son were leaders and shamans and have stimulated many families to migrate to Jureia region.
3. For example, raising together bean, maize and manioc, or varieties from one same species, all of them in the same garden.
4. But not necessarily to the original conditions.
5. The Caiçaras usually refer to them by the last name of the family that has first farmed at that place.
6. In many situations the Caiçaras preferred to set the traps in places used by animals as shelter or passages (carrero).
7. According to communities from Praia do Una, sometimes fresh or smoked fishes could be sold but this activity always suffered with the high competition from semi-industrial or industrial fishing.

Acknowledgments

I thank W. A. Neves (Instituto de Biociências, Universidade de São Paulo), D. T. Gallois and A. P. Felipim (Centro de Trabalho Indigenista) for guiding the dissertation; R. L. Moura and M. de Vivo (Museu de Zoologia, Universidade de São Paulo) for critically reading the manuscript and revising the English grammar; M. C. Zanini, C. Adams, E. S. Brondízio, and E. A. C. Nobre for valuable suggestions on the manuscript and for additional revisions of the English version; three anonymous referees for their criticisms and constructive advice on the final manuscript; Cris Koch for the drawing of the calendars graphs; the Estação Ecológica de Juréia-Itatins and Instituto Florestal (F. P. de Campos, C. A. M. Reis, J. M. Neto, C. D. Prado, M. M. Santos and L. R. Domingues) for logistical facilities and support to research; the *EEJI* inhabitants for all guiding field work; and CNPq for financial support of this project.

References

Adams, C. 1998. Caiçaras na Mata Atlântica: Pesquisa cientifica versus planejamento e gestão ambiental. In J. E. da Veiga (org.), *Ciência Ambiental*, 299-320. São Paulo: Annablume/FAPESP.

Balee, W. 1989. The culture of Amazonian forests. *Advances in Economic Botany* 7, 1-21.

Begossi, A. 1992. The use of optimal foraging theory to understand fishing strategies: A case from Sepetiba Bay (Rio de Janeiro). *Human Ecology* 20(4), 463-475.

Begossi, A. 1993. Ecologia humana: Um enfoque das relações homem-ambiente. *Interciência* 18(3), 121-132.

Begossi, A. 1997a. Aspectos de economia ecológica: Modelos evolutivos, manejo comum e aplicações. In A. R. Romeiro, B. P. Reydon and M. L. A. Leonardi (orgs.), *Economia do Meio Ambiente*, 43-51. Campinas: FAPESP/EMBRAPA/ UNICAMP.

Begossi, A. 1997b. Escalas, economia ecológica e a conservação da biodiversidade. In C. Cavalcanti (org.), *Meio Ambiente e Desenvolvimento*, 56-71. São Paulo: Cortez Editora.

Begossi, A. 1997c. Resilience and neo-traditional populations. In F. Berkes and C. Folke (eds.), *Linking Social and Ecological Systems*, 129-158. Cambridge: Cambridge University Press.

Begossi, A. and P. J. Richerson. 1992. The animal diet of families from Buzios Island (Brazil): An optimal foraging approach. *Journal of Human Ecology* 3(2), 433-458.

Bernard, H. R., P. Killworth, D. Kronenfeld and L. Sailer. 1984. The problem of informant accuracy: The validity of retrospective data. *Annual Review of Anthropology* 13, 495-517.

Boserup, E. 1987. *Evolução Agrária e Pressão Demográfica*. São Paulo: Hucitec-Polis.

Brasil (República Federativa do Brasil). 1996. *Os Ecossistemas Brasileiros e os Principais Macrovetores de Desenvolvimento*. Brasília: MMA/PNMA.

Brito, M. C. W. de. 1998. Unidades de conservação: Intenções e resultados. In J. E. da Veiga (org.), *Ciência Ambiental*, 209-228. São Paulo: Annablume/FAPESP.

Brito, M. C. W. de and L. P. Vianna. 1992. Vila de Picinguaba: O caso de uma comunidade caiçara no interior de uma área protegida. — II Congresso Nacional sobre Essências Nativas, *Anais Revista do Instituto Florestal* 4, 1067-1073.

Brondízio, E. S., E. F. Moran, P. Mausel and Y. Wu. 1994. Land use change in the Amazon Estuary: Patterns of Caboclo settlement and landscape management. *Human Ecology* 22(3), 249-278.

Brondízio, E. S. and A. D. Siqueira. 1997. From extractivists to forest farmers. *Economic Anthropology* 18, 233-279.

Brooks, T. and A. Balmford. 1996. Atlantic forest extinctions. *Nature* 360, 115.

Candido, A. 1964. *Os Parceiros do Rio Bonito*. Rio de Janeiro: José Olympio Editora.

Capobianco, J. P. R. and A. Lima. 1997. A evolução da proteção legal da Mata Atlântica. In A. Lima and J. P. R. Capobianco (orgs.), *Mata Atlântica: Avanços Legais e Institucionais para sua Conservação*, Documentos do ISA n˚4, 7-18. São Paulo: Instituto Socioambiental.

Catharino, E. L. M. and A. A. R. Olaio. 1990. *Anthurium jureianum* (Catharinho & Olaio), Nova Espécie de Araceae Endêmica do Litoral de São Paulo, Brasil. *Hoehnea* 17(2), 1-6.

Conklin, H. C. 1969. An ethnological approach to shifting agriculture. In A. P. Vayda, *Environment and Cultural Behavior*, 221-223. New York: The Natural History Press.

Cunha, M. C. 1998. *História dos Índios no Brasil*, 2nd edition. São Paulo: Companhia das Letras.

Cunha, L. H. O. and M. D. Rougeulle. 1989. *Comunidades litorâneas e unidades de proteção ambiental: Convivência e conflitos; o caso de Guaraqueçaba (Paraná)*, Série Estudos de Caso, Pró-Reitoria de Pesquisa da Universidade de São Paulo/UICN/Fundação Ford, São Paulo: Universidade de São Paulo.

Dean, W. 1996. *A ferro e fogo: A história da devastação da Mata Altântica Brasileira*. São Paulo: Companhia das Letras.

Diegues, A. C. S. 1983. *Pescadores, Camponeses e Trabalhadores do Mar.* São Paulo: Editora Ática.

Diegues, A. C. S. 1994. *O Mito Moderno da Natureza Intocada*. Sao Paulo: Núcleo de Pesquisas em Áreas Úmidas do Brasil/Universidade de Sao Paulo.

Ellen, R. 1989. *Environment, Subsistence and System*. Cambridge: Cambridge University Press.

Emmons, L. H. 1997. *Neotropical Rainforest Mammals: A Field Guide*, 2nd Edition. Chicago: University of Chicago Press.

Geertz, C. 1969. Two types of ecosystems. In A. P. Vayda (ed.), *Environment and Cultural Behavior*, 3-28. New York: The Natural History Press.

Goward, N. 1984. The field work experience. In R.F. Ellen (ed.), *Ethnographic Research*, 87-129. London: Academic Press.

Hanazaki, N., H. de F. Leitão-Filho and A. Begossi. 1996. Uso de recursos na Mata Atlântica: O caso da Ponta do Almada (Ubatuba, Brasil). *Interciência* 21 (6), 268-276.

Hogan, D. J. 1995. Limites econômicos e demográficos da proteção da biodiversidade. In G. A. B. de Fonseca, M. Schmink, L. P. Pinto and F. Brito (eds.), *Abordagens Interdisciplinares para a Conservacao da Biodiversidade e Dinâmica do Uso da terra no Novo Mundo*, 123-134. Universidade Federal de Minas Gerais, Belo Horizonte: Conservation International.

Holy, L. 1984. Theory, methodology and research process. In R.F. Ellen (ed.), *Ethnographic Research*, 13-34. London: Academic Press.

Hunn, E. 1982. The utilitarian factor in folk biological classification. *American Anthropologist* 84, 830-847.

Johnson, A. W. and T. Earle. 1987. *The Evolution of Human Societies*. Stanford: Stanford University Press.

Jovchelevich, P. and G. Canelada. 1992. Manejo agroflorestal das populações tradicionais da Estação Ecológica de Juréia-Itatins. — II Congresso Nacional sobre Essências Nativas, *Anais Revista Instituto Florestal* 3, 913-920.

Lees, S. H. and D. G. Bates. 1990. The ecology of cumulative change. In E. F. Moran (ed.), *The Ecosystem Approach in Anthropology. From Concept to Practice*, 247-277. Ann Arbor: University of Michigan Press.

Linares, O. F. 1976. "Garden hunting" in the American tropics. *Human Ecology* 4(4), 331-349.

Madi, E. and A. Begossi. 1997. Pollution and food taboos: A practical reason? *Journal of Human Ecology* 8(6), 405-408.

Marcílio, M. L. 1986. *Caiçara: Terra e População*. São Paulo: Ed. Paulina.

Martins, J. de S. 1981. *Os Camponeses e a Política no Brasil*. Petrópolis:Ed. Vozes.

Martuscelli, P., L. M. Petroni and F. Olmos. 1994. Fourteen new localities for the Muriqui *Brachyteles Arachnoides. Neotropical Primates* 2(2), 12-15.

McGrath, D. G. 1987. The role of biomass in shifting cultivation. *Human Ecology* 15(2), 221-242.

Meggers, B. 1954. Environmental limitation on the development of culture. *American Anthropologist* 56, 801-204.

Mendonça, A. L. F., G. V. M. Canelada, P. Jovchelevich, R. A. Sanches and R. Russo. 1993. *Levantamento Etnobiológico na Estação Ecológica de Juréia-Itatins*, Biodiversity Support Program. São Paulo: World Wildlife Fund (unpublished report).

Moran, E. F. 1974. The adaptive system of Amazonian Caboclo. In C. Wagley (ed.), *Man in the Amazon*. Gainesville: University of Florida Press.

Moran, E. F. 1990. *A Ecologia Humana das Populações da Amazônia*. Rio de Janeiro: Ed. Vozes.

Mourão, F. A. A. 1971. *Os pescadores do litoral sul do Estado de São Paulo: Um estudo de sociologia diferencial*. Dissertação de Doutorado, Faculdade de Filosofia, Letras e Ciências Humanas. São Paulo: Universidade de São Paulo.

Murrieta, R. S., E. S. Brondízio, A. D. Siqueira and E. F. Moran. 1989. Estratégias de subsistência de uma população ribeirinha da Ilha do Marajó, Brasil. Série Antropologia, *Boletim do Museu Paraense Emílio Goeldi* 5(2), 147-163.

Mussolini, G. 1980. *Ensaios de Antropologia Indígena e Caiçara*. Rio de Janeiro: Paz e Terra.

Netting, R. McC. 1993. *Smallholders, Householders: Farm Families and the Ecology of Intensive, Sustainable Agriculture*. Stanford: Stanford University Press.

Netting, R. McC., G. D. Stone and M. P. Stone. 1995. The social organization of agrarian labor. In E.F. Moran (ed.), *The Comparative Analysis of Human Societies*, 55-73. Boulder: Lynne Rienner Publishing.

Nogueira-Neto, P. 1991. *Estações Ecológicas — Uma Saga de Ecologia e de Política Ambiental*. São Paulo: Ed. Empresa das Artes.

Oldfield, M. L. and J. B. Alcorn. 1987. Conservation of traditional agroecosystems. *BioScience* 37(3), 199-208.

Orlove, B. S. and S. B. Brush. 1996. Anthropology and the conservation of biodiversity. *Annual Review of Anthropology* 25, 329-352.

Paz, V. A. and A. Begossi. 1996. Ethnoichthyology of Gamboa Fishermen of Sepetiba Bay, Brazil. *Journal of Ethnobiology* 16(2), 157-168.

Peoples, J. and G. Bailey. 1988. *Humanity: An Introduction to Cultural Anthropology*. St. Paul: West Publishing Company.

Peres, C. A. 1994. Indigenous reserves and nature conservation in Amazonian forests. *Conservation Biology* 8(2), 586-588.

Petrone, P. 1966. *A Baixada do Ribeira: Estudo de Geografia Humana*. Boletim no. 283, Faculdade de Filosofia, Letras e Ciências Humanas. São Paulo: Universidade de São Paulo.

Por, F. D. and V. L. Imperatriz-Fonseca. 1984. The Juréia Ecological Reserve, São Paulo, Brazil. Facts and plans. *Environmental Conservation* 11(1), 67-70.

Por, F. D. 1986. Stream type diversity in the Atlantic lowland of the Jureia area (Subtropical Brazil). *Hydrobiologia* 131, 39-45.

Primack, R. B. 1995. *A Primer of Conservation Biology*. Massachussetts: Sinauer Associates Inc.

Queiroz, M. I. P. 1969. *Vale do Ribeira: Pesquisas Sociológicas*. Secretaria dos Serviços e Obras Públicas/Faculdade de Fisolofia, Letras e Ciências Humanas (Convênio USP/DAEE). São Paulo: Universidade de São Paulo.

Queiroz, M. I. P. 1973. *O Campesinato Brasileiro*. Petrópolis: Ed. Vozes.

Queiroz, R. S. 1983. *Caipiras Negros no Vale do Ribeira: Um estudo de Antropologia Econômica*. Série Antropologia I, Faculdade de Filosofia, Letras e Ciências Humanas. São Paulo: Universidade de São Paulo.

Rappaport, R. A. 1968. *Pigs for the Ancestors: Ritual in the Ecology of a New Guinea People*. New Haven:Yale University Press.

Redford, K. H. 1993. Hunting in neotropical forests: A subsidy from nature. In C. M. Haldik et al. (eds.), *Tropical Forests, People and Food*, 227-246. Paris: UNESCO.

Redford, K. H. and J. G. Robinson. 1987. The game of choice: Patterns of Indian and Colonist hunting in the neotropics. *American Anthropologist* 89(3), 650-667.

Ribeiro, D. 1995. *O Povo Brasileiro*. São Paulo: Companhia das Letras.

Ribeiro, D. and C. A. M. Neto. 1992. *A Fundação do Brasil*. Petrópolis: Ed. Vozes.

Rizzini, C. T. 1979. *Tratado de fitogeografia do Brasil*. São Paulo: Hucitec-EDUSP.

Sanches, R. A. 1997. *Caiçaras e a Estação Ecológica de Juréia-Itatins (Litoral Sul, Sao Paulo): Uma Abordagem Etnográfica e Ecológica para o Estudo da Relação Homem-Meio Ambiente*, Dissertação de Mestrado, Departamento de Ecologia, Instituto de Biociências. São Paulo: Universidade de São Paulo.

São Paulo (State). 1991. *Cadastro Geral dos Ocupantes — E.E.J.I.* São Paulo: Governo do Estado de São Paulo, Secretaria do Meio Ambiente, Instituto Florestal, Divisão de Reservas e Parques Estaduais, Equipe Litoral- Sul (unpublished report).

São Paulo (State). 1995. *Desapropriações em Parques e Estações Ecológicas. Relatório Elaborado por Grupo de Trabalho Constituído pela Portaria D.G. — I.F. de 25/04/95*. São Paulo: Governo do Estado de São Paulo, Secretaria do Meio Ambiente, Coordenadoria de Informações Técnicas, Documentação e Pesquisa Ambiental, Instituto Florestal, Divisão de Reservas e Parques Estaduais.

Silva, L. G. S. da. 1993. *Caiçaras e Jangadeiros: Cultura Marítima e Modernização no Brasil*. São Paulo: CEMAR.

Siqueira, P. 1984. *Genocídio dos Caiçaras*. São Paulo: Massao Ohno-Ismael Guarnelli Ed.

SOS Mata Atlântica and INPE (Instituto Nacional de Pesquisas Espaciais). 1993. *Evolução dos Remanescentes Florestais e Ecossistemas Associados do DomÌnio da Mata Atlântica no Período 1985-1990*. São Paulo: Fundação SOS Mata Atlântica and INPE.

Teleginski, A. 1993. Aspectos históricos e fundiários no Vale do Ribeira e sua influência no desenvolvimento econômico da região. In *III Simpósio de Ecossistemas da Costa Brasileira*. 1, 104-106.

Toledo, V. M. 1992. What is ethnoecology? Origins, scope and implications of rising discipline. *Etnoecológica* 1(2), 5-21.

Vansina, J. 1985. *Oral Tradition as History*. Madison, WI: The University of Wisconsin Press.

Viana, V. M. 1995. Conservação da biodiversidade de fragmentos de florestas em paisagens intensivamente cultivadas. In G. A. B. de Fonseca, M. Schmink, L. P. Pinto, and F. Brito (eds.), *Abordagens Interdisciplinares para a Conservação da Biodiversidade e Dinâmica do Uso da terra no Novo Mundo*, 135-154. Belo Horizonte: Conservation International, Universidade Federal de Minas Gerais, University of Florida.

Vianna, L. P. 1996. *Considerações Críticas sobre a Construção da Idéia de população Tradicional no contexto das Unidades de Conservação*, Dissertação de Mestrado, Departamento de Antropologia. São Paulo: Universidade de São Paulo.

Willems, E. and G. Mussolini. 1966. *Buzios Island, A Caiçara Community in Southern Brazil*. Monographs of the American Ethnological Society. Seattle and London: University of Washington Press.

Wolf, E. R. 1970. *Sociedade Camponesas*. Rio de Janeiro: Zahar Editores.

Literary Theory and Ecology: Some Common Problems and a Solution

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Abstract

At first glance, present literary theory (poststructuralism) and ecology seem to be going in opposite directions. Roland Barthes, for example, used the words "to naturalize" to describe the falsification of historically motivated conventional truth. For Barthes, culture is always a semiological system. Forget nature. Ecology, on the other hand advocates a return to nature. The looming catastrophe that awaits us is due to anthropocentrism. Our relation to nature is bogus; we must get back to a more genuine relationship with nature by paying attention to nature's requirements. Each position opposed in their use of nature seeks emancipation from the bondage of a misperception. However, it does not take long for a postmodern literary theorist to feel comfortable in the "natural" abode of the ecologist. Both seek emancipation from an inadequate cultural habitation inherited from the past. Both agree that a naive "objectivity" or absolute is not available. But the literary theorist has to solve the problem of proliferating points of view and trivialization of standpoints. Ecology has to solve the essentializing of the new holistic paradigm as promoted by the deep ecologists. Using the lessons learned from feminist literary theory — a progress from essentialism (C. Spretnak and C. Wolf) to deconstruction (J. Butler) to dialogism (L. Alcoff and T. Lauretis) — ecology can also embrace dialogism as illustrated by William Cronon, Michael Pollan, and Carolyn Merchant. That ecology could also replace worn out patriarchal religions is a needed and hoped for prospect though still only speculation. F. Capra's The Web of Life (1996) embodies that prospect in an appealing non-idolatrous way.

Keywords: *dialogism, feminism, social construction of reality, jumping the culture/nature gap, grand narratives, contingency*

At first glance, literary theorizing and ecological theory seem to be heading in opposite directions. When Roland Barthes "demythologized" the accepted "truths" of contemporary culture by showing how intentions become "facts," the word he used to label this falsification was to "naturalize." For Barthes, all culture is myth or historical convention. When cultural discourses hide their historical motivation, they transform "history into nature" (1972, 129). They transform value into facts. The aim of the literary critic is to undo this essentializing of cultural discourses, to demystify the bogus "natural" back into historically motivated discourses. For Barthes, this demythologizing is a process of not consuming the discourse (myth) for its content but in revealing how its particular meaning was created. This is now referred to as discourse analysis. Culture is always a semiological system. Forget nature.

Ecology, on the other hand, by its very name, advocates a return to nature. The looming catastrophe that awaits us is due to anthropocentrism. We ignore nature except as a material resource to serve human ends and, as we continue to exploit nature — arguably our most basic relationship — we take on a bogus position with it, harming both nature and ourselves. Somehow, we must get back to a more genuine relationship with nature.[2] Simplifying this opposition, we could describe literary poststructuralism as claiming that human subjectivity is always present and inescapable, while the ecologist proclaims that only by escaping human self-interest, by returning to nature, to the "objectivity" of paying attention to nature's requirements, can we be saved. Each position, opposed in their use of nature, seeks emancipation from the bondage of a misperception.

However, it does not take long for a postmodern literary theorist to feel quite comfortable in the "natural" abode prepared by the ecologists. Gone is the determinism, the universal laws of cause and effect, so typical of mechanistic science based on Newtonian physics. Since the revolution of quantum physics in the 1920s, Heisenberg's uncertainty principle, and Thomas Kuhn's transformations of scientific laws to historical paradigms, science also has been accepted more as an historical and social construct than as privileged to reveal nature in itself. Thus, literary theory and ecological theory play in the same ballpark even though at first they seem to have incompatible orientations. The aims of both run remarkably parallel and, as we will find out, so do their problems. Both theoretical fields share the postmodern stance that reality is more constructed than found. Both are suspi-

cious of naïve empiricism, of an unmediated access to an innocent and untouched nature impressing itself upon a human consciousness resembling a *tabula rasa*. Both see their purpose to be educational. They desire to demolish an inadequate cultural habitation inherited from the past and to redecorate the mental living rooms of the young, bringing about a more just society in the present and a more sustainable relationship with the environment in the future.

This common aim of emancipation made possible by postmodern self-awareness unites the literary critic and the ecologist. What makes emancipation possible is the loss of all foundations, of any transhistorical authority that had been offered in the Western tradition. It is this "loss of center" that fuels the political orientation and rhetoric of what has now become ever proliferating and competing points of view. In the absence of universals and absolutes of any kind, decisions have to be made in terms of historical frameworks. Another way of putting it is that there can be no knowledge without a perspective from which it is gained. There is no absolute or God's point of view, only partial historical ones.[3] Here is J. F. Lyotard (1984, 482) on the paradigm shift from modern to postmodern: "I will use the term *modern* to designate any science that legitimates itself with reference to a metadiscourse . . . making an explicit appeal to some grand narrative, such as the dialectics of Spirit, the hermeneutics of meaning, the emancipation of the rational or working subject, or the creation of wealth. . . . Simplifying to the extreme, I define *postmodern* as incredulity toward metanarratives." Thus, any reference to some natural order to support human progress seems out of the question. Rather, emancipation derives from a greater awareness of the contingent, historical, and ever changing nature of the models used for representing the world.

Of course, this paradigm shift is quite evident in ecological theory, too. Nature, admittedly and openly, now becomes a social construct. Here is the ecological physicist, Fritjof Capra, embracing the changeover in physics from Newtonian, atomic, and mechanistic to Bohr's quantum, holistic, and organically interrelated paradigm: "The major problems of our time . . . are all different facets of one single crisis, which is essentially a crisis of perception. Most of us and our institutions subscribe to an outdated world view, inadequate for dealing with the problems of our overpopulated, globally interconnected world" (1988, 334-41). The shift from the inadequate mechanical elementary building blocks model to the new holistic or ecological worldview, according to Capra, is accompanied by the realization that scientific descriptions aren't objective and independent of the human observer and the process of knowing. "What we observe is not nature itself, but nature exposed to our method of questioning" (337). Heisenberg's uncertainty principle has as its consequence that self-reflexivity will be an integral part of every scientific theory. We will never successfully jump the culture/nature gap; absolutes are gone. What we have left is approximate knowledge. Though science can't provide a complete and definitive understanding of nature, and truth is not a precise correspondence between description and the described phenomena, approximate knowledge will still have to undergo the test of adequacy. Ironically, the discovery that science is merely a social paradigm gives imaginative wings to nature's deep ecologists. Instead of retrenching like Lyotard into local and limited decision-making, deep ecologists like Arne Naess, George Sessions, and Bill Devall agree with Capra's assessment that we need a new paradigm.[4] Reform movements won't cut it. To be effective, the new paradigm has to be ecocentric, not anthropocentric. We need a holistic totalized vision that subordinates man to nature. Nature viewed as a diverse living network functioning like a huge global organism becomes the ultimate value. Its survival is more important than the species chauvinism expressed by our scientific progress and ever increasing industrial production. Rather than the personal God of traditional theisms, deep ecologists turn God into an impersonal immanent force expressing itself via non-living and living forms. A belief in a divine Unity with which humans can identify becomes the basis for a more inclusive ethic or way of life that extends to non-human and non-living things.

Personally, I believe that this re-enchantment of nature is a good thing.[5] The old patriarchal world religions are exhausted, intellectually and story-wise. Humans do need to embed their individual existences into some overarching narrative. But that narrative has to be believable and empowering. The extant world with its privileged religions, (i.e. revealed by God) and their anthropomorphic deities, supernaturalisms, body/soul, matter/spirit, heaven/hell bifurcations are survivals from a simpler past. As the world grows smaller and these either/or Absolutes confront each other more frequently, the increasing massacres, holy wars, and political ethnic cleansings reveal the bankruptcy of these "privileged" dogmas.[6]

That we are in need of a new paradigm that incorporates the religious dimension is made explicit by the biologist E.O. Wilson in his recent book, *Consilience: The Unity of Knowledge* (1998, 263). He puts forward his notion of consilience as a religious substitute by which the arts and humanities could be subsumed under a grand evolutionary narrative and which would add resonance and awe to our existence — but, in his case, still operating under the deterministic control of cause and effect explanation. Here is Wilson waxing eloquent on jettisoning religious transcendentalism for evolutionary materialism: "The spirits our ancestors knew intimately first fled the rocks and trees, then the distant moun-

tains. Now they are in the stars, where their final extinction is possible. But we cannot live without them. People need a sacred narrative. They must have a sense of larger purpose, in one form or other, however intellectualized. . . . If the sacred narrative cannot be in the form of a religious cosmology, it will be taken from the material history of the universe and the human species. That trend is in no way debasing. The true evolutionary epic, retold as poetry, is as intrinsically ennobling as any religious epic" (289). Wilson ends his book with twenty pages in support of ecology while still insisting on subordinating all phenomena under the aegis of universal causal laws. However, Wilson's avowal of the human need for religion and our own general experience that people do not respond to statistical tables about environmental crises, but do respond via emotional and personal ties when coming to nature's rescue, indicate the potential range and power of an ecological paradigm wherein we perform responsible roles in a much grander narrative than increasing the GNP.

Leaving the advocacy of ecology as a substitute for worn out patriarchal religions, let us see what some self-reflection on theory will produce. Because feminism has been influential in both literary theory and ecology, I would like to describe its development in literary study and draw some parallels with ecological theory.

Feminist theory went through three general stages: essentialist (metaphysical), nominalist (deconstructive), and positional (dialogical). While this describes the general trend, not all of the early stages have been superseded. Both essentialists and deconstructionists are still very much active and noisy. Charlene Spretnak's *Lost Goddesses of Early Greece* (1984) and Christa Wolf's *Cassandra* (1984) are excellent examples of essentialistic literary feminism. The latter is fiction; the former is a feminist reinterpretation of early Greek myths. Spretnak could be described as a female Jungian in her general procedure, even though she attacks Jung and Joseph Campbell for not using the matriarchal version of goddess myths. Feminists have to take the male/female dichotomy seriously or else their point of view ceases to matter. This happens to those feminists who only embrace deconstruction (see below). Usually, feminine essentialists tend to group innate gender traits or values around sexual difference. A female is emotional, intuitive, caring, participatory, we-thinking, desirous of consensus and harmony, life supporting, egalitarian, and Other directed; a male is intellectual, judgmental, abstract, hierarchical, me-thinking, aggressive, war-like, domineering, and prestige driven.

By going back to the pre-Olympian myths wherein religion was still ritualized (ritually enacted using the whole body), humankind and especially women can revivify their lives. These early pre-Hellenic myths, claims Spretnak (1984, 24), "grew from the collective psyche of our ancestors and are relevant to our own psyches today." Jung wasn't wrong in seeking out universal images that have existed since remotest times, it's just that the patriarchal political displacements of the earlier matriarchies also warped and distorted the early goddess myths. Jung's archetypes, thus, are patriarchal archetypes, which transformed the attributes of the all-powerful Goddess severely. "The great Hera was made into a disagreeable, jealous wife; Athena was made into a cold, masculine daughter; Aphrodite was made into a frivolous sexual creature; Artemis was made into the quite forgettable sister of Apollo; and Pandora was made into the troublesome, treacherous source of human woes" (Spretnak 1984, 18). As these goddesses are all later derivatives of the Great Goddess, Gaia, "the supreme deity for millennia in many parts of the world" (Spretnak 1984, 18), the subordination and demotion of the Goddess to a male overlord also symbolized a complete inversion of values. Whereas the original Earth Goddess "was held sacred and associated with order, wisdom, protection, and the life-giving processes (e.g., seasonal change, fertility of womb and field)" (Spretnak 1984, 18), the male Olympian gods were distant, judgmental, more warlike, and involved in unending bickering and strife. Thus, the feminine psyche, cleansed and informed by the goddess aura of pre-Olympian myths, could perhaps help in turning our masculine life-threatening culture from its suicidal path. We can be saved from annihilation by actively making the public aware of long eras of peace among societies that lived by holistic values; this precedent shows it is possible. The latent wisdom in our body/mind can wash out the artificial habits accrued later. In this changeover, the authentic female mind, enlarged and supported by pre-Olympian ritual and myth, can be our salvation.

Christa Wolf's novel, *Cassandra*, delivers a very similar message. According to Wolf, western civilization took a wrong turn from an earlier egalitarian matriarchy to a hierarchical patriarchy. This period of transition she recreates in her version of the Fall of Troy. Cassandra, as seer and prophetess, is the self-aware observer through whom this "historical event" is recorded. The older matriarchy is represented by Hecuba, Cassandra, Anchises, the rural folk, and lower classes who gather on the banks of the Scamander River and worship Cybele. The patriarchy is represented by the Greeks, and their managerial ethos is represented and accelerated in Priam's court through the Greek-thinking Eumelos, head of the palace guards. We listen in as Cassandra, waiting before the lion gate of Mycenae and knowing she will be killed shortly, recounts the loss of Troy as a much greater loss. She describes the fatal changeover from matriarchal leadership to masculine dominance in which women lost their social freedom, voice, and agency to wartime political expediency or, more accurately, to mascu-

line pride and honor. In her own comments on *Cassandra*, Wolf talks about the "objectification" of women, turning them into property, into useful instruments for political manipulation, given or reassigned in marriage for the sake of political alliances, like pawns on a chessboard. Truth, which is what Cassandra speaks, has no value if it does not serve the political agenda of Priam's court. We, who are gifted with hindsight, verify Cassandra's premonitions about the "progress" of our civilization under patriarchal manipulation and deceit, in which official state communications become calculated disinformation. Masculinity has become the enemy. At the end of the novel, Wolf (1984, 138) identifies with Cassandra in a two line addenda as she, too, stands before the lion gate in Mycenae:

> *Here is the place. These lions looked at her.*
> *They seem to move in the shifting light.*

She confirms that the night of the ravenous beasts prophesied 3000 years ago is still alive and in place.

Deconstructive feminist is almost a contradiction of terms. One can't really be both. Most feminists use deconstructive techniques. It is a method of reading that uncovers the rhetorical basis of definitions or substantive claims about women. When Elaine Showalter (1985) divides her literary criticism into *feminist critique* and *gynocriticism*, it is the former that uses deconstructive techniques to uncover patriarchal bias in how women are presented in traditional literature. Gynocriticism, on the other hand, studies female writers in an attempt to establish some essential feminine traits (if any) by empirical inductive methods. The latter has not been too successful. But the deconstruction of female stereotypes in patriarchal literature has been a smashing success. Virtually, all the voices from the margins — race, class, gender, ethnic, gays, etc. — use deconstruction to good effect in revealing the social origin or frame for the classifying and devaluing of the marginalized. Most discourse analysis or cultural critique is done in the name of social equality or justice. But, of course, deconstruction based on "difference" cannot itself take a stand anywhere. Asserting a privileged position for your point of view has been subverted by the diacritical and anti-foundationalist stance toward language that makes possible the marginal critique against mainline essentialism in the first place. A rigorous deconstructive feminist ends up not being one. She has to commit to *jouissance* (play), which is all that Derrida leaves her. Judith Butler is a good example of a feminist deconstructionist who ends up celebrating unceasing open-ended *jouissance*.[7] In *Gender Trouble*, she can do little besides emancipate women from limiting definitions. She brilliantly deconstructs the gender/sex relationship in which she proves their arbitrary and conventional connection, that what constitutes being a woman or man has no intrinsic connection with biology or sex at all. In fact, sex itself doesn't escape deconstruction. It is mediated by power relationships like everything else. She, of course, ends where deconstruction has to take her: sex can't be a controlling essence. Remember that for a deconstructionist everything is created out of rhetoric. A woman is what she does; she has no inherent bodily limitations that differentiate her from a man. Masculine and feminine categories are always social and historical constructs and, when substantialized, in need of deconstruction. In her version of feminism, Butler dissolves the body and makes it disappear. Or rather woman is liberated into infinite semeosis; she could assume a certain kind of corporeal style, to live or wear her body a certain way seemingly unhindered by any intrinsic bodily considerations. Considering what patriarchal rhetoric had done to women, Butler's liberation of feminine possibilities is most admirable. But to deny the body so totally seems counterintuitive somehow. By absolutizing emancipation within the operation of language itself, the deconstructionists forbid leaping the gap between culture and nature. The rational progress of the human animal ends with complete freedom from "objectivity," a joyful play that feeds off a total skepticism of any revelatory relationship between culture and nature.

This politically and ethically hapless condition leads us into our third stage, positionality or the dialogical. Linda Alcoff in her article, "Cultural Feminism versus Post-structuralism," offers 'positionality' as a further development of Teresa Lauretis' dialogical approach to establishing female identity.[8] In her book, Lauretis (1984) explored "the problem of conceptualizing woman as subject," because she understood that changing how women are culturally defined has a political goal. The standpoint from which to launch the corrective, however, becomes a problem. If "woman" is a social construct, a product of historical discourses, what counternorm is available to mount a critique and legitimate change? If "woman" is a semiotic product of culture, then one can't go to "nature" to reveal the repressed authentic woman underneath. Of course, if subjectivity were governed by biology, then a universal and ahistorical norm would be possible. For example, the "selfish gene" followers of E.O.Wilson propose just such a biological universal.[9] Lauretis allows "woman" to emerge as a product of experience. She describes experience as a phenomenological in-between position, as "a complex of habits resulting from the semiotic interaction of 'outer world' and 'inner world,' the continuous engagement of a self or subject in social reality" (quoted in Alcoff, 342). Alcoff expands on this situated experience to define woman's subjectivity as 'positionality.'

> *. . . positionality allows for a determinate though fluid identity of woman that does not fall into essentialism: woman is a position from which a feminist politics can emerge rather than a set of attributes that are "objectively identifiable." Seen in this way, being a "woman" is to take up a position within a moving historical context and to be able to choose what we make of this position and how we alter this context. From the perspective of that fairly determinate though fluid and mutable position, women can themselves articulate a set of interests and ground a feminist politics* (Alcoff, 350).

I suggest that what Lauretis and Alcoff do for "woman," ecologists should do for "nature."

Nature, unlike "woman," is not a subject. Even so, it shares woman's fate of being "objectified" in patriarchal discourse. The ecofeminists have done a good job in drawing analogies between the treatments of mother earth and women. Under patriarchy, still the prevailing social discourse in the West, both suffer domination and exploitation. What has changed in our new attitude to nature is that we no longer view it as just a material resource. Nature is now considered alive, very much a living organism. Like an organism, it seems to be a self-regulating system whose parts can only be fully understood in their functional relationship and interdependence to the whole — the earth as biosphere or ecosystem. Because nature can only be viewed adequately as a living system, human relationships to the earth undergo a change. Before, earth as material resource fell under the market "laws" of economics. Now human economic interests must subordinate themselves to the health of the planet. Sustainability is the new norm based on egalitarianism, on treating nature in the "just" manner requested by women and other marginal groups. Its health, well-being, and ultimate survival is at stake. As we are part of nature, ultimately our survival is at stake.[10] Thus, while nature is not a subject, i.e., it cannot use rhetoric as feminists do on behalf of itself, it has a language of its own. It has been talking to us and its natural signs portend danger and perhaps catastrophe. Nature, of course, would accept insects as survivors in our stead with equanimity. Whatever happens, happens. Nature will go on without us. We are the ones who value the present living ecosystem and our position in it; we must act wisely to sustain it.

When we turn to ecology, we find the same ontological, epistemological, and ethical problems emerging as we uncovered in feminist literary criticism. But the emphasis differs. The problem to be solved in the human sciences is the proliferation of points of view with its ever-increasing relativism and trivialization. Ecology has the same culture/nature problem but what ecologists must escape from is an "objectified" nature. The movement is from a nature whose processes and workings remain separate, pure and unsullied by human hand — nature as wilderness — to a nature open to historical contingencies and human intervention. In solving this problem, some ecologists end up in a dialogical position similar to Alcoff's. We will look at two: William Cronon (ed.) *Uncommon Nature* (1995) and Michael Pollan's *Second Nature* (1991).

In his book, Cronon (1995, 69-90) states that it is time to rethink nature as wilderness. He concedes that this will appear a dangerous heresy to many environmentalists. After all, the idea of wilderness — pure, uncontaminated, almost sanctified nature — in contrast to civilization viewed as a disease or pestilence infecting the earth, has been a refuge for many, for some a last hope to save the planet. But he doubts whether "wilderness" can materialize this hope. He points out that such essentialized "pure nature" never really existed. Indeed, "we mistake ourselves when we suppose that wilderness can be the solution to our culture's problematic relationships with the nonhuman world, for wilderness is itself no small part of the problem" (70). "Wilderness" projects on nature values that nature does not inherently possess. For example, wilderness in the Bible was equivalent to "wasteland," "desert," and "barren desolation." It was a place "to lose oneself in moral confusion and despair" (70). When Adam and Eve were expelled from the Garden of Eden they entered a wilderness that only "their labor and pain could redeem" (71). It took the Romantic movement and the American frontier to change what was wild, worthless, and terrible, the antithesis of all that was orderly and good, into landscape beyond price, into Eden itself. Cronon concedes that "wilderness" ideology did much to establish our many national parks and wilderness areas. Without the wilderness concept, much of this conservation wouldn't have happened. Wilderness had become sacred.

But in becoming sacred, claims Cronon, nature as wilderness excluded humans from living in it (except as tourists). Wilderness is the place where the epic struggle between malign civilization and benign nature is taking place, according to Earth First (Cronon 1995, 84). Such "a perspective is possible only if we accept the wilderness premise that nature, to be natural, must also be pristine — remote from humanity and untouched by our common past" (83). But everything we know about the past suggests, "that people have been manipulating the natural world on various scales for as long as we have a record of their passing" (83). Cronon states that as long as we continue to hold up to ourselves the mirror of nature as a "wilderness we can't inhabit," we won't progress very far with our environmental concerns (83). What we need is a truer picture of the human/nonhuman relationship. Most of our serious environmental prob-

lems start at home. If we are to solve those problems, "we need an environmental ethic that will tell us as much about *using* nature as about *not* using it. . . . The wilderness dualism tends to cast any use as *ab*-use, and thereby denies us a middle ground in which responsible use and non-use might attain some kind of balanced sustainable relationship" (Cronon 1991, 85). By ex-ploring this middle ground, we will learn how to imagine a better sustainable world for all of us, human and non-human. When Aldo Leopold and his family turned a ravaged and infertile soil into carefully tended ground, into "home," they existed with nature side by side in relative harmony. What wilderness has to contribute to this new orientation is the possibility of transferring the profound feelings of humility and respect for the earth as "other" to our back yard. Wildness is present in our everyday experience, not just out there in "wilderness." We should bring culture and nature together in a home that encompasses both.

Michael Pollan makes a similar plea, except his metaphor of choice is not "home" but "garden." His essay, "The Idea of a Garden" (1991, 176-201) begins with a tornado destroying a forty acre site of venerable white pines in Cornwall, his home town in Connecticut. The controversy over what to do with the destroyed wooded site showed the sterility of the man/nature debate that ensued and initiated in Pollan the new idea of a garden as being more useful to guide the human/non-human relationship. The site, a national natural landmark called Cathedral Pines, was under the care of the Natural Conservancy whose environmentalists viewed the storm damage as "natural." Following the wilderness ethic, they held that nature should be allowed to restore itself with no outside interference. The wilderness ethic viewed nature as an ecosystem that obeys its own laws of equilibrium, which in time would restore Cathedral Pines with a new climax forest. But Pollan quite rightly shows that nature suffers from accident and contingency so much that any inherent tendencies described by a wilderness ethics won't control the future. Indeed, forest succession is a theory that frequently does not take place; e.g. fires, deer browsing, exotic imports like Norway maples, or heavy rains all could produce a different and contingent outcome. If nature is open to contingencies, orderly narratives like forest succession, ecosystems, and evolution recede into comforting metaphysical stories. Their disappearance may trouble some, but actually it is good news. While discovery of contingency undoubtedly makes it more difficult to decide what to do with Cathedral Pines, it allows human hopes and desires to influence the future just as much as other contingencies. Because the state of nature fluctuates with historical contingencies as do all events, restoring Cathedral Pines to wilderness inescapably forces us to make human choices. Thus, environmental questions because of their ambiguous outcomes can't be handled with the absolutist wilderness ethic. " 'All or nothing' says the wilderness ethic and in fact we've ended up with a landscape in America that conforms to the injunction remarkably well" (Pollan 1991, 188). We did invent the wilderness areas. They remain pure and untouched. But once a landscape is no longer "virgin," it is typically written off as fallen, lost to nature, irredeemable. Then "you might just as well put up condos. And so we do" (Pollan 1991, 188). We seem to have divided the country in two, between the kingdom of wilderness (8%) and the kingdom of the market (92%). The question for us who care about nature is what to do or how behave when we are on the market side (which is most of the time)? The wilderness with its absolutist ethic won't be of much help over here. The metaphor of divine nature admits only two roles for man: as worshipper (environmentalist) or temple destroyer (the developer). With 92% of the real estate "damaged", the temple's been destroyed. We need to jettison the wilderness ethic for one that works better in the everyday world. Instead of looking to the wilderness, we should look to the garden for the makings of a new ethic. A gardener's ethic gives local answers; accepts contingency and history; agrees to be anthropocentric but in a broad sense that respects wildness; accepts nature's indifference, in fact, has a legitimate quarrel with nature; feels participatory in positive environmental change; often borrows methods from nature itself; and uses culture as feedback while being at ease with the fundamental ambiguity of his predicament — while he lives in nature, he is no longer strictly *of* nature. "Nature apparently indifferent to his fate ... obliges him to make his own way here as best he can" (Pollan 1991, 196). The essentialized "divine nature" is dead which makes it possible to act differently and engage in a marriage with her. Turn nature into a reciprocal partner; treat her soliticiously, like a garden.

What have we discovered in this comparison of literary and ecological theory? Literary theory in its efforts to legitimate its activity has embraced the dialogical. In the absence of universals of any kind, critique — which needs a norm or place to stand — has embraced a consensual historically contextualized "truth." In order for such a historicized relativized truth to remain authentic, criticism (and literature) must become self-reflexive, i.e. indicate that it is just an historical construct and not pose as some transcendent Truth. It must be transparent and up-front about its own non-foundational position, its own point of view.

Not all literary and, more broadly, cultural criticisms do this. Instead, they foreground the loss of foundations in all disciplines, whether science, religion, philosophy, or art and, in this newly emancipated intellectual area, they then erect an alternative edifice more to their liking. If truth is a precipitate of a point of view, they stand ready to provide the needed refocused salutory "truth." Thus, we have every imagin-

able reinterpretation of literature — feminist, Marxist, ethnic, racist, colonial, Lacanian, existentialist, gay/lesbian, structuralist, deconstructionist, etc. The result has been the gradual emerging of criticism as more important than literature — literature becomes an occasion for discourse analysis illustrating the essentialized truth of a particular point of view. A once powerful variant of this insistence on point of view is the now faded stance of political correctness. Even so, the proliferation of these essentialized alternatives did promote some needed reforms and restorations that have improved social justice and egalitarianism. But the continued proliferation of viewpoints can only lead to increasing relativism with its attendant trivialization. It is no accident that certain champions of poststructuralism now seek to resuscitate a pragmatic form of universal. They desperately need to escape from a 'difference' that allows them no place to stand.[11]

Many literary theorists, however, have embraced a non-essentialized, open-ended kind of dialogism. They agree that universals are not available and accept an eternal schism between the flux of reality and any interpretive scheme. But rather than drawing Nietzschean consequences, i.e. debunking the pursuit of reason and knowledge as a disguised will to power (e.g., Foucault) — they wish to continue with the standards of reason and critique. Deduction from universal laws may have disappeared, but the temporal dimension of history offers us before and after comparisons on which to make value judgments. The dialogistic praxis of Bakhtin, Gadamer, Ricoeur, and Charles Taylor continue the enlightenment tradition without its *scientism*, i.e. that scientific method coupled with technology will bring inevitable progress. What the dialogisms found in the above thinkers share is an open-ended freedom to create a new self-world relationship based on historical awareness of how the present cultural configuration came into being. In the eternal historical present, we will ceaselessly reinterpret the past out of which will come the new worlds of the future.

Our two ecologists above share this historical dialogical stance. In the recent collection of her ecofeminist essays, *Earthcare: Women and the Environment*, Carolyn Merchant echoes the necessity of such a historically oriented dialogical approach to ecology:

> *I develop an ethic of earthcare based on the concept of a partnership between people and nature. . . . Nature . . . is real, active, and alive. Human beings . . . are also real, active, autonomous beings. . . . Nature . . . has the potential to destroy human lives and to continue to evolve and develop with or without human beings. Humans, who have the power to destroy non-human nature and potentially themselves through science and technology, must exercise care and restraint by allowing nature's beings the freedom to continue to exist, while still acting to fulfill basic human material and spiritual needs. An earthcare ethic . . . is generated by humans, but is enacted by listening to, hearing, and responding to the voice of nature. A partnership ethic then emerges as a guide to practice.* (Merchant 1995, Introd. xix)

She actually goes so far as to oppose the use of Gaia mythology to find metaphysical support in nature for feminist values. She believes that the emancipation of women made possible by the social construction of nature (reality) will be better served by just viewing nature as an ongoing open-ended process.[12] The evils attendant on essentializing nature in whatever form, whether through nature as female, or the deep ecologists using nature as the symbol for Self-realization, or Wilson's nature reduced to the old universal paradigm of cause and effect, has to be avoided. If postmodern culture in its repudiation of essentialism demands self-reflexivity and open-endedness, then any adequate concept of nature must incorporate this potential in its description. At this moment, the only ecological theory that successfully incorporates Heisenberg's uncertainty principle with its consequence that self-reflexivity must be an integral part of every scientific theory is Fritjof Capra's synthesis of autopoiesis, dissipative structures, and complex mathematics in what he calls the "web of life" (1996). For him dialogism on the cultural level finds its predecessor in autopoiesis on the biological level. He seems to have done the impossible by offering a natural framework that provides the stabilizing order given in the past by religious narratives while escaping idolatry in allowing freedom from closure to human imagination. The synthesis of the new scientific theories within this new paradigm is ambitious. Its exciting potential beckons us to further dialogue.

Endnotes

1. E-mail: Greenecho2@aol.com.
2. See the introduction to Zimmerman and Callicott (eds.) 1993.
3. See Cahoone, L. (1996) for a multiple description of the changeover.
4. For Arne Naess and George Sessions, see "Part Two: Deep Ecology" in Zimmerman and Callicott (eds.) 1993. For Bill Devall, see "The Deep Ecology Movement" in *Natural Resources Journal* 20 (April 1980), 299-313.
5. A good sampling of reinvigorated postmodern essentialism can be found in David Ray Griffin (ed.) (1988); Judith Plant (ed.) (1989); and David Bohm (1980). See also Luc Ferry (1995) on the performative contradiction of deep ecology.
6. On the need to move beyond traditional religions of the revealed variety, see Don Cupitt (1997).

7. J. Butler (1990). This discussion of Judith Butler appeared earlier in my "How Not to Get Lost in Cultural Studies . . ." in Heinz Antor and Kevin Cope (eds.) *Intercultural Encounters — Studies in English Literatures* (1999) Heidelberg: Carl Winter Verlag.
8. In Nicholson, L. (ed.) 1997; 330-55
9. See for example, Diamond, J. (1993) and Dawkins, R. (1989).
10. This argument is based on self-interest. That other relationships to nature might be more influential and fulfilling, I leave the reader to discover. See for example, Elliot, R. (ed.) 1995.
11. See Judith Butler, Ernesto Laclau and Slavoj Zizek, (2000). Also "Is There Life After Identity Politics?," a special issue of *New Literary History* (Autumn, 2000).
12. "My own view is that, however inspirational, the cultural baggage associated with images of nature as female means that gendering nature is at present too problematical to be adopted by emancipatory social movements in Western societies. A view of nature as a process, one that is more powerful and longer lasting than human societies and human beings, is a sufficient basis for an ethic of earth-care" (*Ibid*., xxii). On the parallel between deep ecology and Self-realization as forms of metaphysical interconnectedness, see Freya Mathews, Value in Nature and Meaning in Life, in Elliot, R. (1995, 142-154).

References

Barthes, R. 1972. *Mythologies*. New York: Hill and Wang.

Bohm, D. 1980. *Wholeness and the Implicate Order*. London: Oxford University Press.

Butler, J. 1990. *Gender Trouble.* New York: Routledge.

Butler, J., E. Laclau, S. Zizek. 2000. *Contingency, Hegemony, Universality.* London: Verso.

Cahoone, L. E. (ed.). 1996. *From Modernism to Postmodernism: An Anthology*. Cambridge: Blackwell.

Capra, F. 1988. Systems theory and the new paradigm. In C. Merchant (ed.), *Ecology: Key Concepts in Critical Theory*, 1994, 334-41. New Jersey: Humanities Press.

Capra, F. 1996. *The Web of Life*. New York: Anchor Books.

Cronon, W. (ed.). 1995. *Uncommon Ground: Toward Reinventing Nature*. New York: W.W. Norton.

Cupitt, D. 1997. *After God: The Future of Religion*. London: Weidenfeld & Nicholson.

Dawkins, R. 1989. *The Selfish Gene*. Oxford: Oxford University Press.

Diamond, J. 1993 (1991). *The Third Chimpanzee: The Evolution and Future of the Human Animal*. New York: Harper Perennial.

Elliot, R. (ed.). 1995. *Environmental Ethics*. Oxford: Oxford University Press.

Ferry, Luc. 1995. *The New Ecological Order*. Chicago: University of Chicago Press.

Griffin, D.R. (ed.). 1988. *The Reenchantment of Science.* Albany: SUNY.

Lauretis, T. 1984. *Alice Doesn't*. Bloomington: University of Indiana Press.

Lyotard, J.F. 1984. The postmodern condition. A report on knowledge (excerpt). In L. E. Cahoone (ed.), *From Modernism to Postmodernism: An Anthology*, 1996, 481-513. Cambridge: Blackwell.

Merchant, C. 1995. *Earthcare: Women and the Environment*. New York: Routledge.

Nicholoson, L. (ed.). 1997. *The Second Wave*. London: Routledge.

Plant, J. (ed.). 1989. *Healing the Wounds*. London: Green Print.

Pollan, M. 1991. *Second Nature.* New York: Atlantic Monthly Press.

Showalter, E. (ed.). 1985. *The New Feminist Criticism*. New York: Pantheon.

Wilson, E.O. 1999 (1998). *Consilience: The Unity of Knowledge.* New York: Vintage Books.

Zimmerman, M. and J. B. Callicott (eds.). 1993. *Environmental Philosophy: From Animal Rights to Radical Ecology.* Englewood Cliffs: Prentice Hall.

Real Animals? An Inquiry on Behalf of Relational Zoöntology

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Abstract

The intelligibility of certain environmentalist critiques and animal advocacy positions is underwritten by a realist ontology of animality (or 'zoöntology'). Various constructionist commentaries in human ecology and allied fields tend to undermine this foundation. The present article seeks to defend an intermediate stance ontologically and epistemologically, so as to preserve the significance of eco-critical theories while allowing concerns of contextuality due entry into such analyses. Particular attention is paid to the ontic and epistemic standing of animate entities.

Keywords: *realism, constructionism, zoöntology, animals, eco-criticism*

> *. . . we may yet learn to perceive animals as we ought to: as they really are . . .* (Russow 1989, 38)

> *...our spirit protests against the artificiality of outward show; it demands 'essentials' instead of 'facades' . . . [yet] we shall perceive that the appearance which meets the eye is something of significance and shall not allow it to be degraded to a mere shell which hides the essential from our glance* (Portmann 1967, 34f.).

> *Do animals exist for us as meaningful entities only insofar as each may be thought to manifest or exemplify an ideal type constituted within the set of symbolic values making up the 'folk taxonomy' specific to our culture? Or do we perceive animals directly, by virtue of their immersion in an environment that is largely ours as well, regardless of the images that we may hold of them, or of whether we hold such images at all?* (Ingold 1988, 12)

Critiques of various wildlife protection measures, such as the establishment and maintenance of zoological gardens and parks, are sometimes mobilized by consideration of authenticity factors. For example, are we really saving the wild in conditions of captivity or sanctuary? Is the refuge not in effect a prison that changes the 'true nature' or autonomy of its keep? Framing this kind of query implies a criterion of judgment, which has been phrased so that "a wild animal achieves a state of authentic well-being when it survives and reproduces offspring, based on its own genetic abilities and behavioral adaptations, in a truly natural (as opposed to [merely] naturalistic) environment" (Wuichet and Norton 1995, 239ff.). To assess the legitimacy of this type of criterion, ecophilosophers need to deal with the issue of what a 'real animal' might be, of whether any such entity exists or is knowable. At the other end of the ontological spectrum, social constructionists dispute realist authenticators of animal nature by making claims like the following: "Once brought to human attention an animal is no longer an animal in itself — it can only be that away from human sight, experience and thought" (Mullan and Marvin 1987, 3). Neo-Kantian remarks of this sort raise the specter of what we might call zoological idealism. Consequently, in this essay, I want to compare the phenomenal and biological notions of animality: Is it possible to discover that elusive beast — the 'noumenal organism'? If not, can we rehabilitate the idea of biotic authenticity — a notion crucial to the intelligibility of preservation as such — without resting on essentialistic illusions?[1]

To begin, let us look at a specific illustration of the problem. Two sociologists I have already quoted, Mullan and Marvin, risk confusion when they set out to critique the zoo while simultaneously maintaining allegiance to a constructionist stance. They say that "the human experience of a [captive] creature destroys its authenticity (a quality which is linked to its independence) as a wild animal" and yet insist that "the notion of a 'real animal' makes no sense" because "animals are human constructions" (Mullan and Marvin 1987, 73, 6, 3). How can their charge of inauthenticity be sustained, given their eschewal of a realist zoöntology?[2] One way Mullan and Marvin (1987, 3) attempt to salvage coherence is to soften their anti-realism into an epistemological position so as to rule out the implication that animals "are not real physical entities living in a real physical world, but rather to emphasize they are also man-made in the sense that they are thought about by man, and it is the animal as it is thought about rather than the animal itself which is of significance." However, *meta*physically, this retreat from hard-core constructionism flirts with neo-Kantian dualism (with its concomitant dilem-

ma between perspectivalism vs. two-world ontology) and, hermeneutically, it borders on tautology (insofar as significance as such must be thought — i.e., to be at all).

The conceptual knots in which these sociologists tie themselves are emblematic of a larger problem regarding the ontological status of nature. Metaphysically speaking, many if not most environmentalists are naive naturalists in the sense that they believe in the 'objective outdoors' — an external world existing beyond human edifice and mentality, upon which our buildings and theories are based. Some ecophilosophers, however, have rejected this mainstream conviction in favor of a constructionist stance. So, for instance, Roger King (1990, 102) tells us that "nature is not something in itself, but rather an artifact of human cultural life." Yet, it is unclear whether this claim is meant to express an actual ontology or an epistemology instead, because King (1990, 104) also holds that "*our understanding of* Nature is a product of cultural institutions and the plurality of interpretations of the natural world which they make available."

Now the ambiguity between ontological claim and epistemological deliverance is a typical feature of constructionist positions. In a generic study of constructionism, Ian Hacking (1999, 68) flags just this aspect in asking, "When we say 'X is socially constructed', are we really talking about the idea of X, or about an object in the world?" It is hard to get, and no doubt difficult to give, a straight answer to Hacking's question. Returning to my example, King (1990, 102) offers the following clarification: "To say that Nature is an artifact is to say that we have no access to a Nature in itself; our interpretation of Nature can never be independent of the intellectual, artistic, emotional, and technological resources available to us." Here the latter statement may be read as a reminder that the ineluctable hermeneutic circle binds our construals of the natural world, but the former statement seems to imply a rather radical (and notoriously dubious) species of idealism.[3]

Yet, perhaps some ecophilosophers are prepared to bite the idealist bullet. Steven Vogel (1998, 175), for instance, comes quite close to embracing a quasi-pragmatist, neo-Hegelian idealism when he claims that human "practice doesn't constitute [just] some social part of the world — it constitutes the environing world as such, the world of real objects that surround us, a world that is quite literally 'socially constructed'."[4] What would tempt anyone to adopt such a robustly constructionist stance? I suspect it is the conviction, voiced by Vogel and others, that there is "no access" to the natural world that does not involve some human/social practice.

Here my realist compunctions kick in and I part company with constructionism: obviously our interaction or dialogue with nature is socially constructed (what else could it be?) — yet recognition of that does not automatically commit us to believing nature itself is made up by us. Of course, I cannot express anything about that bare world without dressing it up in language; nonetheless, the assumption that another reality — besides myself or us — is subject and party to (not merely an object in or construction of) my/our discourse and deeds is more plausible than the idea that I/we make the world entirely out of words and actions. One reason this is so is because the latter proposition implies an untenable interpretation of scientific and technological successes and failures (Sismondo 1996, ch. 5). Thus, if we want to come to terms with the many instances of common experience in which people staking a cognitive claim are able (by applying their knowledge) to gain pragmatic results that we who lack that knowledge cannot achieve, then we will abandon full-blown idealism (and its postmodern variant of 'textualism') in favor of some form of realism (however weak).[5] Why? Because the realistic notion that pragmatic coping is explainable in terms of our epistemic beliefs adequately describing enough of the actual world to get by (not necessarily enough to set up a complete correspondence theory of truth). This notion, I hold, is to be preferred over any of the standard options open to idealists: confessing ignorance and calling pragmatic success a miracle, or making appeals to supernatural principles such as pre-established harmony or divine occasionalism.

With the provisional ontological commitments explicated above, let us now return to the topic of immediate concern — nature and animals. The naturalistic realism of Holmes Rolston III is instructive at this point. Here is a thinker who reminds us, "There is always some sort of cognitive framework within which nature makes its appearance, *but that does not mean that what appears is only the framework*" (Rolston 1997, 43, *italics added*). What is salutary about Rolston's approach is his willingness to forego the polemical pendulum swing between foundationalism and relativism. "We may not have noumenal access to absolutes" he admits, and yet "we do have access to some remarkable [natural] phenomena that have taken place and continue to take place outside our minds, outside our cultures" (Rolston 1997, 49). This access is not pure — neither purely objective nor purely subjective. It is a transactional dynamic of interrelationship; as such, it is best understood not as impossible transcendence or as stultifying solipsism but rather as taking place *between* knower and known and capable of yielding *enough* awareness of the latter by the former to enable a negotiation, or better a navigation of what phenomenologists call the "lifeworld" — a domain or zone of experience shared with other forms of life (in both the cultural and biotic senses of the term).[6]

So where does this insight leave us with respect to knowing other animals? Rolston readily appeals to the life sciences for reliable knowledge, undaunted by sociologies or

histories of science that cast suspicion on the scientific enterprise as such.[7] In confrontation with contextualist accounts of science — such as, for example, Donna Haraway's *Primate Visions* (1989) — his reliabilist epistemology can be defended by pointing out that critics like Haraway are either uncovering *mis*-representations (which only makes sense if some idea of truth or its pursuit is still operative) or else their critiques are rendered otiose (for want of a critical foil or fulcrum).[8] Even if all epistemic sites are built (i.e., no knowledge is simply given), not anything can count as a cognitive structure and some building methods are better than others. In the case of understanding different animals, then, the choice to characterize other organisms as say 'merely machines' or as 'feeling flesh' does not reduce to rhetorical strife between metaphors or political struggle among their arbitrary adherents.

Why not? For instance, Rolston (1997, 60) would have it that "there is a chimpanzee self out there which can be known not entirely, not 'absolutely', but sufficiently so that we find that the intrinsic chimpanzee [or any animal?] self-integrity ought not to be lightly sacrificed." Now, though sympathetic to the idea of integrity, I feel compelled to qualify Rolston's siting of an animal-self "out there." If this phrase means "external to me or us," then fine — I do believe personal and cultural horizons are often transcended (in communication, for example); but if the term could be construed to mean "outside the nexus of the knowing process," then I must move more toward the constructionist or pragmatist side of the road: all (at least finite) knowledge is relational, because cognition itself constitutes a relation(ship). It is important — as a matter of cognitive conscience, in order to accept the responsibility of knowledge — neither to underplay nor to overstate this point. Indeed, as ecopolitical theorist Kate Soper (1995, 173, 133) puts it, "in any understanding we bring to other animals we need to be aware of the limits of our understanding;" nonetheless, we must not deny an element of zoöntic discovery — otherwise we risk sliding into species-solipsism, "nor would it make sense to challenge the effects of the imposition of any specific cultural 'norm' or discipline upon their [living bodies'] experience" (as social critics and animal advocates wont to do).[9]

Does this epistemology undermine the notion of ontological authenticity? No, although it does alter our conception of the authentic's locus. Even without determinate knowledge of a 'real' animal behind its appearances (which would ground authenticity-*as*-*origin*), it is still possible to evaluate for honesty within the relational horizon of consciousness (which can float a notion of authenticity-*as*-*integrity*).[10] There is already precedent for the latter approach in the literature of animal studies: in her endeavor to develop "A Taxonomy of Knowing: Animals Captive, Free-Ranging, and at Liberty," Vicki Hearne (1995, 442, *italics original*) emphasizes that "my terms describe not so much various conditions in which animals in *themselves* might be as conditions we are in *with* the animals, social and grammatical conditions and circumstances." Briefly, captive animals are those kept under direct control (think of lab specimens), free-ranging ones are those beyond human confinement, and those at liberty are paradigmatically working animals (dogs and horses, e.g., under conditions of training that enable the flourishing of species-being and individual excellences).[11] Leaving aside the tricky boundary issue between the categories of free-ranging and 'at liberty', notice nevertheless that judgments of inauthenticity are permissible operating on the basis of a relational system such as Hearne's.

Thus, coming around to the contexts cited at this paper's outset, the promotion and indulgence of the zoo presents its keep as wild in the ordinary sense of free-ranging when the relation of keeping itself falsifies this very representation. Likewise, the structure of the zoo's entertainment value plays off a feeling of closeness to 'the wild' in the form of dangerous creatures; yet it generally is not zoo inhabitants' endogenous ferocity that makes them risky relations for human contact, but rather (circularly) their very conditions of captivity. Talk about constructions! As Mullan and Marvin (1987, 4f.) point out, the 'danger' is not so much inherent as it is "a product of the animal's predicament in being forced to be in undesired and unnatural proximity to man." Inasmuch as zoos trade on the allure of such danger, while occluding their role in bringing it about, we can again judge the institution's portrayal of animality to be less than genuine. Finally, note that this judgment does not depend on discovering deviation from an originary truth of animal essence, but is due rather to a structural set-up that disallows acknowledgment of its own preconditions.[13]

My conclusion, then, is that the notion of a noumenal organism is not required for authenticity critiques of conservation institutions such as zoos. Beyond environmental criticism, though, am I recommending that ecologists never refer to 'animalness'? Well, certainly not in a metaphysically presumptuous tone of voice; more modestly, however, it may be possible to limn the contours of constraint on our perception of animality: as one researcher puts it, "because of their distinctive properties of transformational growth and non-repetitive motion, we see animals as such, irrespective of how we might come to describe and classify them."[14] Yet even this kind of claim is more controversial than any I have sought to defend above; if true, though, it would enable condemnation of captivity itself (insofar, that is, as repetitive movement is a behavioral by-product of zoo-keeping). Obviously, therefore, I regard zoöntology as a field far from fully harvested and would encourage its further cultivation within and beyond human ecology.

Coda: An epilogue as dialogue

Logos: So that's it? Seems he just gives up the root notion of autonomy, and replaces it only with a shadow concept in the idea of relational authenticity. In that case zoos, for instance, don't violate the inherent nature of animals (because there isn't any intelligible) — they just misrepresent *themselves to us*, not really the *animals as such*.

Hermes: I think there's more to it than that. His position appears also to be a stance against the kind of biotic idealism that could lead to (at least species, if not subjective) solipsism. I mean if we actually bought into hardline constructionism, then wouldn't we have to regard other animals as being produced by us — not indeed from nothing, but still only and entirely from our own cultural resources?

L: I don't deny the implication, but the way to avoid it is to posit a *really* real animal — you know, something 'out there' in the manner of objective realism.

H: Of course, there are the oft-rehearsed constructionist objections to such a belief. But maybe we don't need objectivism, after all: might not his emphasis on (inter)relationships be enough to avoid the sort of solipsism at stake here?

L: I'm not sure I follow; please spell it out.

H: Even if your zoological awareness is not *of* some essential animal *out there*, isn't it still the case that one's natural experience occurs *with* others *beside* oneself?

L: Maybe, but your articulation is spare and leans heavily on unexplicated connotations of certain phenomenologically murky prepositional phrases.

H: One could, at this point, have recourse to the Marxian discourse on the "transindividual." Would you prefer that?

L: Please no, thank you, not at this time.[15]

H: Just let me mention that Marx thematized a felt space of intersubjectival or better interstitial (and I dare say now ecological) reality which, were we to rehabilitate it carefully, could allow us to circumvent the reductionist difficulties both of monadology and nodal ontology — to thread a path, as it were, between the shoals of solipsism and the hollows of holism respectively.

L: Come again? I'm afraid you've lost me in your penchant for flowery alliteration.

H: I'm talking about the way traditional metaphysics of subjectivity never seem to reconnect sufficiently with the social and the natural, whereas newer process or Gestalt-type ontologies appear to reduce us to mere points in a weblike flux of interactivity. Perhaps a doctrine like Marx's transindividualism could help us get beyond that sort of dilemma — a happy result, I might add, for bioethical ecosophies caught up in the debate between individualism and holism.

L: Okay, I'm prepared to say I'd be interested in seeing something like that develop. But for now, before departing, I'd like to return to the core issue of autonomy. So far, you've only enhanced the plausibility of the thesis that the world contains more than one subject or species. That quantitative result hardly excites. Don't you have any-thing else to say, qualitatively, about the independent status of nature or animality?

H: No and yes: no, because talk about the "independent status" of reality belies the whole notion of lifeworldly hermeneutics; yes, because even within the latter horizon of conversation we can yet say something substantive about the kind of entities populating our environmental philosophy. Basically, it comes down to a recognition that the (relative) dependence of a being's meaning on something or someone else does not nullify that being's existence or autonomy. Influencing an entity, in other words, is equivalent neither to extinguishing nor to controlling it.

L: You mean we don't have to choose between viewing a natural entity either as absolutely autonomous or else as completely inert?

H: That's it! I hope that we can make room in ecophilosophy for acknowledging the multiple agencies of natural and cultural forces — because agency itself does not have to be conceived on the model of consciously self-produced freedom of individual will. It can be thought of instead as occupying permeable centers of power or moving through flexible vectors of force.

L: And thereby we permit a measure of construction to coexist with a degree of autonomy?

H: If you want to put it that way. What I'm getting at is that the authentic need not be *sui generis* to count as having an (however impure) identity of its 'own.' If it had to be so, we'd have landed in the odd situation that to escape inauthenticity an animal (or any other natural feature of the world) must be divine. Surely, though, creatures count — ontologically and axiologically — even if they're not themselves gods!

L: I should hope so, yes indeed.

Endnotes

1. The conceptual dialectic that drives this debate is not unlike that of the controversy in environmental ethics and ecopolitics surrounding the issue of ecosystem or habitat restoration. Like advocates of pristine land, biotic purists insist that (only) the truly wild animal is the 'real' animal (q.v. Paul Shepard, some deep ecologists, et al.); like the restorationists, on the other hand, zoo directors and wildlife rehabilitators are wont to defend the legitimacy of reintroduction and even 'reconstruction' schemes. See, e.g., Claude Guintard and Jacek Rewerski's (1999) "The Disappearance of the Aurochs (*Bos primigenius*) in Poland during the XVIIth Century and the 'Reintroduction'

Project of this Reconstituted Animal in the Mazury Region": working on the basis of an 'inverse' breeding program to re-establish the external appearance of the European domestic cattle's lost ancestor, "an original project combining tourism, nature and tradition ('T.N.T.') is currently being developed to *install* the so-called 'reconstituted' aurochs in the northern part of the country" (abstract, *italics added*).

2. There can be no appeal here to biology as arbiter, because "this [scientific] form of seeing and understanding is itself cultural and in a sense is not more a true picture of the animal than any other" (Mullan and Marvin 1987, 8).
3. Again, King is not alone in this regard. Similar issues arise in others' application of constructionism to nature — see, e.g., Evernden (1992). It is my impression that such thinkers do not want to embrace full-blooded idealism — I know that King (personal communication), at least, does not — but my point is that their writings invite if not entail it. For those unfamiliar with the "hermeneutic circle" mentioned in the main text, the reference is to the feature of interpretation that it has to start somewhere and yet that starting point must itself be interpreted at a later stage in the process of interpreting; this reflexivity is ongoing but virtuous, because each circuit of interpretation reveals new angles of a given text or phenomenon (i.e., articulation 'spirals' informatively).
4. Cf. Lawrence Hazelrigg's (1995, 12, *original italics*) even more emphatic stance in *Cultures of Nature*, where he endorses the position that "nature is a product of human making. Not merely 'the idea of nature' or 'nature as we think it is' or 'nature experienced' ...but the concrete practical materiality, the substance and support, the actual and potential plenitude of the reality of nature — in sum the whole of the given being and being-givenness of nature as it is — is a concrete production in/by human labor in the activity of making life." More cautious, Vogel (1998, 177) is careful to recoil from the furthest extremity of such views — by allowing that "the claim that the environing world is socially constructed does not mean that somehow we build it *ex nihilo*."
5. Here I concur with Kate Soper's (1995, 134-145) position that full-blown constructionism is incoherent. I see myself as supplementing her political argument on this point with an epistemological rationale.
6. Like Hume and a host of American philosophers, I am convinced that stable praxes trump the global doubts of Cartesian-type skepticism. As Rolston (1997, 53) puts it, "One doesn't have to know it all to know something." My own metaphors are those of love- or war-making — even if done in the dark, with your partner or enemy out of full view, there's pretty little room to think you're alone. See also David Abrams' (2000, 9, *italics original*) remarks in his "Language and the Ecology of Sensory Experience: An Essay with an Unconsctructive Footnote," for example: "the 'society' which constructs this indeterminate world is much vaster than any merely *human* society — it includes spiders and swallows and subterranean seepages along with us two-leggeds . . . we humans are by no means the sole, or even the primary, agents of the world's construction."
7. Rolston (1997, 56) sheds scientism by acknowledging that "biological claims do not try to get underneath to some noumenal realm"; but he views science as no worse off for that, because "biology claims that these [life] phenomena are given in themselves." In effect he thus collapses the biological into the phenomenal, trusting with an almost Husserlian faith that noumena are not necessary for reliable cognition.
8. Some commentators, in fact, think that postmodern ecosophy may have already hung itself on the latter horn of this dilemma. E.g., see John Visvader's (1998,32) "Environmental Activism in an Age of Deconstructionist Biology": "The net effect of 'demythologizing' biology and social constructionism is to make environmental values appear to be subjective and relativistic."
9. "For if there are, indeed, no 'natural' needs, desires, instincts, etc., then it is difficult to see how these can be said to be subject to the 'repressions' or 'distortions' of existing norms" (130). These latter remarks Soper makes in relation to human sexes, but her comments apply equally well to the reality of other species (an application in keeping with the argument she develops throughout the book as a whole).
10. Even after foundationalism, in the absence of solid 'grounding,' there remains an option for 'flotational' knowledge: speaking figuratively of our cognitive condition, we can yet build and sail a water-worthy ship — even without plumbing the sea's depths or combing the ocean floor.
11. Cf. Thomas Sebeok's (1988, 68ff.) nine-fold relational taxonomy - which includes categories of predation, partnership, amusement, parasitism, conspecificity, reification, taming, and training. "'Animal' in Biological and Semiotic Perspective." See also Ted Benton's (1993, 62-68) schema (likewise of nine, albeit different categories) in *Natural Relations: Ecology, Animal Rights, and Social Justice.*
12. Interestingly, this example also illuminates the issue of whether the subjects of life sciences' studies are material objects or social objects. Hacking (1999, 72) has it that a characteristic property of the latter is their amenability to feedback loops (whereby the object's behavior is reflexively shaped by subjection to a self-fulfilling regimen of study) — but his dichotomy between physical and human sciences leaves biology unaccounted for. In this light, then, Mullan and Marvin furnish zoological testimony that captive animals are indeed social beings.
13. Imagine what would happen if zoos (and their visitors) were honest about themselves, that what they keep (or see) are captive animals (who do not necessarily display the attributes of free-ranging ones) — this would erase one of their quintessential reasons for being/watching!
14. Edward Reed, as paraphrased by Ingold (1997, 12).
15. See Howard L. Parsons' *Marx and Engels on Ecology* (1977, 32, 121).

References

Abrams, David. 2000. Language and the ecology of sensory experience: An essay with an unconstructive footnote. *Call to Earth* 1.1 (March).

Benton, Ted. 1993. *Natural Relations: Ecology, Animal Rights, and Social Justice*. London: Verso.

Evernden, Neil. 1992. *The Social Creation of Nature*. Baltimore: Johns Hopkins University Press.

Guintard, Claude and Jacek Rewerski. 1999. The disappearance of the aurochs (*bos primigenius*) in Poland during the XVIIth century and the "reintroduction" project of this reconstituted animal in the Mazury region. In Liliane Bodson (ed.), *Animaux Perdus, Animaux*

Retrouves:Reapparition ou Reintroduction en Europe Occidentale d'Especes Disparues de Leur Milieu d'Origine. Belgium: University of Liege.

Hacking, Ian. 1999. Are you a social constructionist? *Lingua Franca* 9.4 (May/June). Excerpted from *The Social Construction of What?* Cambridge, MA: Harvard University Press.

Haraway, Donna. 1989. *Primate Visions*. NY: Routledge.

Hazelrigg, Lawrence E. 1995. *Cultures of Nature: An Essay on the Production of Nature*. Gainesville: University of Florida Press.

Hearne, Vicki. 1995. A taxonomy of knowing: Animals captive, free-ranging, and at liberty. *In the Company of Animals*, special issue of *Social Research* 62.3 (Fall).

Ingold, Tim. 1988. *What is an Animal?* London: Unwin Hyman.

King, Roger. 1990. How to construe nature: Environmental ethics and the interpretation of nature. *Between the Species* 6.3 (Summer).

Mullan, Bob and Gerry Marvin. 1987. *Zoo Culture*. London: Weidenfeld and Nicolson.

Parsons, Howard L. 1977. *Marx and Engels on Ecology*. Westport: Greenwood.

Portmann, Adolf. 1967. *Animal Forms and Patterns: A Study of the Appearance of Animals*. H. Czech, trans. New York: Schocken Books.

Rolston, Holmes III. 1997. Nature for real: Is nature a social construct? In T.D.J. Chappell (ed.), *The Philosophy of the Environment*, 38-64. Edinburgh: Edinburgh University Press.

Russow, Lilly-Marlene. 1989. Changing perceptions of animals: A philosophical view. In R.J. Hoage (ed.), *Perceptions of Animals in American Culture*. Washington, D.C.: Smithsonian Institution Press.

Sebeok, Thomas. 1988. "Animal" in biological and semiotic perspective. In Tim Ingold, *What is an Animal?* London: Unwin Hyman.

Sismondo, Sergio. 1996. *Science Without Myth: On Constructions, Reality, and Social Knowledge*. Albany: State University of New York Press.

Soper, Kate. 1995. *What is Nature?* Oxford: Blackwell.

Visvader John. 1998. Environmental activism in an age of deconstructionist biology. *Human Ecology Review* 5(1), 31-34.

Vogel, Steven. 1998. Nature as origin and difference: Environmental philosophy and continental thought. *Philosophy Today* 42 (suppl.). L.M. Alcoff and M. Westphal (eds.), *Conflicts and Convergences: Selected Studies in Phenomenology and Existential Philosophy*, Vol. 24.

Wuichet, John and Bryan Norton. 1995. Differing conceptions of animal welfare. In B. Norton et al. (eds.), *Ethics on the Ark: Zoos, Animal Welfare, and Wildlife Conservation*. Washington, D.C.: Smithsonian Institution Press.

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Schoenfeld, A. C., R. F. Meier and R. J. Griffin. 1979. Constructing a social problem: The press and the environment. *Social Problems* 27, 38-61.

Cohen, J. 1995. *How Many People Can the Earth Support?* New York: W. W. North.

Altman, I. and S. Low (eds.). 1992. *Place Attachment*. New York: Plenum.

Varner, G. 1995. Can animal rights activists be environmentalists? In C. Pierce and D. VanDeVeer (eds.), *People, Penguins, and Plastic Trees*, 2nd Edition, 254-273. Belmont, CA: Wadsworth.

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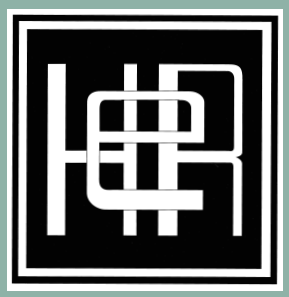

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