
*Amazonia in the Arts:
Ecocriticism versus the Economics of Deforestation™*

Camilo Gomides and Joseph Henry Vogel

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To twentysomethingyearolds who are inspired by *The Voyage of the Beagle*, *The Naturalist*, and *The Motorcycle Diaries*

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Introduction

On July 7, 2004 we left Brazil on an afternoon flight that would take us over the Amazon River Basin. The day was clear and we both had window seats. Despite having flown over the Amazon on many other occasions, neither of us had ever seen the Amazon like we did that day. U.S. flights to and from Brazil usually leave around midnight and one can only imagine the vastness of the Amazon by the hours spent flying over it. What had long been *terra incognita* by night was a spectacular show by day. Going North from São Paulo, we could easily recognize our approach to the agricultural frontier as the cultivated land became more and more interspersed with chunks of primary forests. From 30,000 feet above, the pastures gave way to a green carpet of solid forest where ribbons of rivers would effortlessly fold back on themselves and, tantalizingly, almost touch. May no one *ever* hasten their flow to the sea.

In the time-space warp of an airplane, one's mind wanders and wonders. How many people still live in these forests as they have for thousands of years? As we finally flew over the Amazon River, wide and murky brown, we could spot modern settlements by their metal roofs twinkling in the equatorial sun. The uninterrupted canopy would soon end and the forest would give way to intermittent chunks of pastures and then the checkered pattern of varied agricultural uses. It was the same view as our earlier approach to the Amazon but in reverse. From the (dis)comfort of the window seat on an airplane, the Amazon forest had a beginning and an end and could be traversed in a mere three hours. Perhaps only at the speed of 650 miles per hour can one experience just how finite is the Amazon. Nevertheless, it took little mental effort for us to realize that the Amazon forest will also have an end in time if "economic development" is allowed to continue. Is it simply hubris to believe that anyone can stop the destruction that is gnawing, chunk by chunk, at its fringes?

We were en route to Montreal to participate in the 8th Biennial Scientific Conference of the International Society for Ecological Economics (ISEE2004). Rather than booking a direct flight, we calculated that it would be cheaper to fly to the airport hub (Newark, New Jersey), rent a car, and drive the rest of the way. Now we were at an altitude four orders of magnitude less than air travel, in other words, approximately 3 feet from the ground. The industrial wastelands that surround the Newark International airport contain highways that fan out through a suburban sprawl. From the air, those highways also look like ribbons. The following morning, we took one of those ribbons into the dense forests of upstate New York. Coincidentally, traversing the forests of the Catskills and Adirondacks by car takes about the same time as traversing the Amazon by plane, but at a velocity one order of magnitude less, a mere 65 miles per hour. The forests along the road were not primeval like those we had admired from 30,000 feet just the day before. By the mid-19th century, the Catskills and Adirondacks had already had been logged over. Unfortunately, the deforestation took place before the advent of landscape photography. The best image of what was lost comes to us from the nineteenth century Hudson River Valley School of painters who had set up easels in those woods. A few generations farmed the land before abandoning that hardscrabble life and migrating elsewhere, thereby allowing for a natural succession of tree species. What a pity that the primeval forests of the Catskills and Adirondacks could not have survived the bottleneck of “economic development” of the 19th century! No matter what zoning laws are now imposed in upstate New York, the original wilderness will never return. Fortunately, this is not yet the case in the Amazon. The original wilderness is still there and can pass through the bottleneck of “economic development” without deforestation. But, will it?

In Convention Halls around the world, such hypothetical questions have been raised for the last two decades (and at no small expense to taxpayers). At the Palais des Congrès de Montréal, we were attending the latest round. The Conference was entitled “Challenging Boundaries: Economics, Ecology, and Governance” and boasted 39 distinct themes with 600 participants from over 40 countries. Despite a diversity of opinion among the experts, a common faith exists that the tools of economics, when married to ecology, could bring the panoply of environmental problems within our lens of resolution.

Although less than a half dozen of the 400+ presentations dealt specifically with the Amazon basin, the vast majority did address allied issues such as biodiversity loss, climate change, and over-consumption. The hope is that the consequence of such knowledge will result in sustainable development, not just in the Amazon but also in tropical Africa and Asia. The ultimate end of thousands of professionals from around the world is a steady state of energy and material flows. Working under the banner of “ecological economics,” their collective philosophy is captured in the Portuguese metaphor *trabalho de formiguinha* (the work of itsy-bitsy ants). Each does his or her part and, amazingly, the job gets done. Having witnessed the causes and effects of deforestation from both the air and the ground, in the far-off Amazon and the close-by Adirondacks, we believe that such humility is actually a form of hubris. We have arrived at the sobering conclusion that no division of labor, no matter how well intended or engineered, can achieve piecemeal the ultimate end of a steady state in the Amazon or, for that matter, anywhere. Like most unwelcome acknowledgments, it is grounded not just in experience but also in common sense.

Common sense tells us that, in the face of a crisis of truly epoch proportions, governments should impose a limit and then figure out what can be done to help us live within that limit. This conclusion is also nothing new. It could even be found in the ISEE Conference Program, viz # 11 of 39: “The Precautionary Principle.” However, we took little consolation from such representation. Our objection is that precaution should not *just* be given equal time in such talkfests; it should be the integrating structure for all dialogue in sustainable development. Moreover, policies should flow from its application. Therefore, we were distressed to hear one keynote speaker advance the “Total Value of Biodiversity” while another expounded his earlier work on the “Total Value of Everything.”[1]

On our way back from Montreal, we drove through Vermont, checked into a motel in Brattleboro, and spent the next day at The Stowe Center in Hartford, Connecticut. Analogies of the abolition of slavery and the conservation of the Amazon consumed our thoughts. The Center celebrates the life of Harriet Beecher Stowe, whose 30 literary

works includes one that never went out of print since its first edition in 1852: *Uncle Tom's Cabin*. Stowe's home in Hartford is carefully preserved and full of memorabilia including, coincidentally, a beautiful Hudson River Valley painting of a New England landscape that no longer exists. Stowe's grandniece, Katherine Seymour Day, bought the clapboard house in 1927 as well as the neighboring mansion of Mark Twain in 1929, and the adjoining Burr mansion in 1940. All three structures had been slated for demolition to make way for commercial buildings. To manage the properties, Day founded what today we would call an NGO (non-governmental organization): "The Stowe, Beecher, Hooker, Seymour Day Memorial Library and Historical Foundation." Through the actions of this one very determined lady (behavioral geneticists take note: the grandniece of another very determined lady), the proud homes of two giants of American letters passed through the bottleneck of twentieth century economic development. It was not difficult to draw analogies with twenty-first century Amazonian deforestation. Three generations onward and counting, we are the beneficiaries. Thank you Madame Day!

Pam Bowen was our tour guide. Pam brought to life many details of the Stowe biography that we may have once read but had long since forgotten. Other details could only have been gleaned from seeing the place where Stowe lived and worked. For example, potted plants constitute the only window treatment in an upstairs bedroom, just as Stowe had advised contemporary homemakers in her journals. Throughout the house were paintings of flowers that Stowe had done at different points in her life, both in the Northeast and in Florida, demonstrating what conservation biologists now call "biophilia"---a love of life.

Listening to Pam tell us about the life and times of Stowe, we could not fully disconnect from our own areas of interest---the Amazon. Analogies easily came to mind. Foremost among them was the health crisis Stowe suffered in 1846. Pam explained how physicians of the early 19th century would prescribe the "blue pill" (mercurous chloride) for various ailments. Unfortunately, Stowe had taken it throughout her young adulthood and suffered the symptoms of chronic mercury poisoning: disorientation and loss of control of limbs.[1] Early 19th century medicine was still too primitive to identify the causes of illnesses and the effects of treatments. Fortunately, Stowe went to a spa that had recently

opened in Brattleboro, Vermont, which offered a “water-cure.” It consisted of drinking and bathing in pure water and following a simple life. Apparently, it worked. Having just left the ISEE Conference two days earlier, Stowe’s medical treatment offers a lesson for our colleagues: first do no harm. With respect to the deforestation system, 21st century ecological economics, like 19th century medicine, is still too primitive to know whether or not any recommendation is conserving the Amazon or, ironically, destroying it. Our suspicion is that a “Total Value of Biodiversity” is one of those blue pills. And so, our recommendation, like the water-cure of Brattleboro, is detoxification: the precautionary principle implies a prohibition of all activities that would diminish the forest canopy. Specifically, we advise our colleagues in the ISEE to forget about computing an optimal size of habitat conservation in the Amazon and, instead, direct all energies toward elaborating policies that can make politically palatable a binding prohibition on deforestation.

Our position is constructed on the forgotten foundations of ecological economics: the Second Law of Thermodynamics. We recall that Ilya Prigogine won the Nobel Prize in Chemistry in 1977 for having shown how fluctuations in variables, sensitivity to boundary conditions, and amplification of small events can unfold into unpredictable outcomes.[3] Applied to the Amazon basin, the lesson from Prigogine is that the total value of biodiversity lies beyond our lens of resolution. Nevertheless, the Second Law does have policy implications, and Stowe’s life offers an analogy. She went for that water-cure some six years *before* penning *Uncle Tom’s Cabin*. Had the boundary conditions been different (say, the spa in Brattleboro hadn’t yet opened), the fluctuations different (say, one of those “blue pills” was slightly bluer), then the amplification effects wouldn’t have eventuated. We refer specifically to the respectability of abolition realized through the serialization of *Uncle Tom’s Cabin*. In writing her *oeuvre*, Stowe demonstrated much faith in art as a pathway for social change. Like Stowe, we also have faith that art can be a pathway for change. In the mid-19th century, the horrific system to be changed was slavery; in the first half of the 21st century it is deforestation. There is much to learn from how Stowe accomplished what she set out to do. Our role, like that of Stowe, is to help create the boundary conditions.



Figure 1.1 *The Old Man who Read Love Stories*, upper Amazonia in Ecuador; *At Play in the Fields of the Lord*, Roraima, Brazil; *The Emerald Forest*, Manaus and the surrounding area; *Bye bye Brazil*, the Transamazonic Highway, Pará, Brazil; *Maira*, Mato Grosso, Brazil; *The Burning Season* (TBS), Acre, Brazil.

Chapter One

Ecocriticism: The Purpose and the Promise

What is our metaphor for the Amazon forest? A tropical paradise? Or an entangled Eden? Many scholars have contemplated such metaphors and there is no need to expand an already large body of work. [1] What is our metaphor for Amazonian deforestation? Economic development? Or an ecological holocaust? The question has not been fully aired even though its answer has very practical implications for human welfare. By understanding how we select our metaphors for Amazonian deforestation, we can also explore how we feel about its effects. Once those feelings are fully acknowledged, we can rationally choose to either preserve the Amazon or allow, unimpeded, the sixth and latest mass extinction in the history of life on Earth. No time is more urgent than now as the rates of deforestation in many Amazonian countries are surpassing historic records. [2]

Metaphors for Amazonian deforestation are not confined to written texts. They can also be found in film, music, popular art----indeed, the entire domain of cultural studies. Because the venues are multiple, they can quickly overwhelm and we will confine our enquiry to just texts and film. Even with these filters, an unwieldy number of works of art emerges. Our purpose is not to simply survey texts and films on Amazonian deforestation as such an exercise holds little promise for preserving the Amazon. Instead, we wish to identify those works which are polemical and understand how they may motivate an audience to take some positive action to end deforestation. Applying the additional filter "polemical" to "texts and film," the number of potential works quickly reduces. We have chosen six, three being texts and three, films---a very feasible endeavor. To analyze them, we shall employ a methodology known as "ecocriticism."

Cheryll Glotfelty, editor of the first major anthology on ecocriticism, defines the new methodology as "the study of the relationship between literature and the physical environment." Another pioneer of ecocriticism, Scott Slovic, offers a similarly broad definition: "the study of explicit environmental texts by way of any scholarly approach or, conversely, the scrutiny of

ecological implications and human-nature relationships in any literary text, even texts that seem, at first glance, oblivious of the nonhuman world.” [3] Although such inclusiveness holds much appeal to scholars in the humanities, it does not integrate well with the scientific method. In both the social and physical sciences, precise definitions are the basis for constructing models and testing hypotheses. Even within the humanities, scholars are beginning to rumble. Nancy Easterlin warns...if ecocriticism, like any other academic unit, is to be firmly established and recognized, it will hardly do to define it as “less a method than an attitude” ...We all have many attitudes, some more rationally or ethically justifiable than others, but no attitude alone can define or sustain an area of intellectual inquiry. [4] In assessing this emergent field, Dana Phillips is even less charitable than Easterlin. “A lot of work calling itself ecocriticism has taken the form of preliminary, exploratory, accusatory, and hortatory essays...As a result, ecocriticism still seems embryonic and unformed.” [5]

Because deforestation is a real phenomenon measured by real tools, we must find a precise definition of ecocriticism that is befitting of the sciences. Considering the several that already exist, the most insightful can be gleaned from a description offered by Karen J. Winkler in a survey article in *The Chronicle of Higher Education*,

... nobody is willing to pin down what ecocriticism is. Very broadly, scholars say that it adds place to the categories of race, class, and gender used to analyze literature. For some, that means looking at how texts represent the physical world; for others, at how literature raises moral questions about human interactions with nature. [6]

Winkler’s description implies that the physical world can be gauged by science and compared to works of art that represent it. This is the beginning of a precise definition and we are encouraged to refine it, not by those scientists who bemoan “a generation of ecological yahoos” [7] or disdain the postmodernists “who have chosen not to encumber themselves with a scientific education,”[8] but by the many ecocritics who genuinely seek a synthesis between the sciences and the arts. In the same review article from *The Chronicle*, Glen A. Love comments

As a literary scholar, it embarrasses me to listen to colleagues who see science as just a bunch of cultural stories or who talk about nature writing without knowing very much about nature...It's time to heal the breach between the hard sciences and the humanities---and literary theory isn't going to do it. [9]

Before tendering our definition, we feel obliged to disclose our intentions as self-proclaimed ecocritics. Systematically, we will compare the *representation* of Amazonian deforestation in selected works of art to what is known about its causes and effects in the sciences. This is not as straightforward as it may appear. The causes and effects of Amazonian deforestation are hotly disputed and, even more disturbing, contradictory. The economist Sven Wunder has surveyed the scientific literature and identified three distinct schools of thought. [10] He has tabulated how each (The Impoverishment School, The Neoclassical School, and The Political Ecology School) answers six core questions about the deforestation system. All three schools assume that the problem lies within the lens of resolution of the sciences which, we believe, makes room for a fourth which hails from the letters, viz., The Ecocritical School. In Chapter Three, we will explain how ecocriticism answers the six core questions of Amazonian deforestation distinctly from the established schools. In Chapters Four through Nine, we will then apply Wunder's classification key, expanded to include The Ecocritical School, to select texts and films (see Figure 1.1).

Contrary to what one might infer, verisimilitude is not the *sine qua non* in selecting any work of art for ecocritical analysis. We will make the case that verisimilitude is necessary to find solutions but it is almost never sufficient to motivate action. Indeed, if it were, the existing documentaries and scientific texts, of which there has been a plethora for some time, would suffice. Drama, on the other hand, can pique the curiosity of an unsuspecting audience and, inadvertently or purposefully, persuade them to take action. In other words, we believe that art is more effective than science in penetrating the political sphere and motivating action. Therefore, the task at hand goes beyond simply classifying the factual accuracy of a text or film or even asking how the work raises moral questions in the general public. To help end deforestation, the

ecocritic wants to know whether any particular work motivates action. And more importantly, do patterns emerge among works that are successful in motivating action?

Our emphasis on action is not original. [11] Elements can be seen in the Glotfelty's Introduction to *The Ecocriticism Reader*:

Many of us in colleges and universities worldwide find ourselves in a dilemma. Our temperaments and talents have deposited us in literature departments, but, as environmental problems compound, work as usual seems unconscionably frivolous. If we're not part of the solution, we're part of the problem. [12]

Similar sentiments are also found throughout the environmentalist literature. In *Ecological Literacy*, David W. Orr cites an historian who dismisses the "majority of research at a modern university [as] busywork on a vast, almost incomprehensible scale." Dominic Head goes one step further in "The (im)possibility of ecocriticism," suggesting "...the process of developing specialized thinking about language and literature may be self-serving, channeled in the direction of a contained professionalism." We believe that such misgivings arise from any analysis that omits deliberate action. Out of these kindred protests emerges the promise of ecocriticism: a methodology that is not merely reactive, but intentionally proactive. Therefore, it is not enough to say that ecocritics must be "supporters, in some fashion, of environmental preservation" or "commit[ted] to environmental praxis"; ecocritics must suggest how to realize environmental preservation through art. [13] Closest to what we want in ecocriticism is found in a definition offered by Laurence Coupe

The most important branch of green studies, which considers the relationship between human and non-human life as represented in literary texts and which theorises about the place of literature in the struggle against environmental destruction. [14]

Unfortunately, Coupe's definition stops just short of *fomenting* successful struggles against environmental destruction.

Our rejection of all the existing definitions is inspired by the pedagogy of Paulo Freire who maintained that the educator is either on the side of the oppressor or on the side of the oppressed. [15] Cognizant of the dilemma, the educator must choose. [16] We believe that the ecocritic must either be on the side of conserving the environment or on the side of its destruction. In the case of the Amazon, the dichotomy is in high relief. For the deforestation system, there is no luxury of neutrality, just delusion. Admittedly absolutist, we believe that anyone aspiring to call him/herself an ecocritic, must choose limits or be grouped with the despoilers. Throughout this book, we will elaborate this position and conclude with "Being Part of the Solution."

To be proactive one must motivate. Therefore motivation as well as action must figure prominently into any new definition of ecocriticism that is simultaneously broad and discriminating. Before we tender our definition, we feel compelled to credit the source of this insight: Michael E. Soulé, a stalwart of conservation biology. In the edited volume *Biodiversity*, Soulé writes

The hypothesis is that if our pedagogy is purely cognitive, our chances of motivating a change in values and behavior are nil. We can't succeed in teaching people biophilia...with economic arguments and ecological reasoning alone. We must see to it that they have limbic experiences, not just neocortical ones. We must learn from the experts---politicians and advertising consultants who have mastered the art of motivation. They will tell us that facts are often irrelevant. Statistics about extinction rates compute, but they don't convert. [17]

Soulé's argument is both very right and very wrong. To the extent that it is right we wish to incorporate it in our definition. To the extent that it is wrong, we wish to amend it.

To help end deforestation, Soulé implies that "economic arguments and ecological reasoning alone" will not suffice. Yes, we must "motivat[e] a change in values and behavior"---a fundamental insight that is easily forgotten, especially in the sciences. But can we look to advertisers as Soulé suggests? Advertisers need not motivate a change in values or behavior that lasts any longer than it takes to get the plastic thingamajig past the cash register (as parents are

reminded every Christmas afternoon as their children mope and complain of boredom). For the purposes of advertising consultants, an impulsive change in values and behavior is enough to achieve the goal.

Soulé's analogy also does not hold in the realm of politics. In many Amazonian countries, politicians live in a time frame as short as one year. For example, Ecuador experienced ten Heads of State between 1995-2005. [18] A candidate for political office need not motivate a change in values or behavior any longer than it takes to cast a ballot (coups or election fraud notwithstanding). For the purposes of politicians, a "feel good" change in values and behavior suffices. However, evolution is not measured in advertising time (seconds or minutes) or even political campaign time (weeks or months) but in tens of thousands of years. Indeed, even an infinitesimal contraction of the Amazonian forest cover, say, a mere 0.05% per generation, will spell mass extinction over evolutionary time. [19] For the *purposes* of preserving the Amazon basin, "learn[ing] from [those] experts," as Soulé suggests, is not enough. Preservation implies that the changes in values and behavior must be sustainable over thousands of human generations. Precisely because we must "liv[e] within limits," [20] a robust definition must explicitly incorporate the exigency of limits. Fortunately, this should not be a hard sell among the ecocritics. Glotfelty notes "most ecocritical work shares a common motivation: the troubling awareness that we have reached the age of environmental limits." [21] Love has voiced a similar sentiment: "The most important function of literature today is to redirect human consciousness to a full consideration of its place in a threatened natural world." [22]

With the ground now prepared, we will hazard a definition which is significantly distinct from those surveyed. Sharing the advocacy of Glotfelty and Love, incorporating the limits of Garrett Hardin, correcting the subtle flaw in Soulé, and always inspired by Freire, we propose:

Ecocriticism: The field of enquiry that analyzes and promotes works of art which raise moral questions about human interactions with nature while also motivating audiences to live within a limit that will be binding over generations. [23]

Although our definition is new, the idea of art as an agent of social change is as old as art itself. No doubt, there is much to be learned from the history of social movements? Who has done something similar? And what can we import from that experience? The next chapter explores the thorny concept of verisimilitude as applied to deforestation and how perceptions/misperceptions can be managed to raise moral questions about human interactions with the Amazon and motivate action.



Chapter Two

Ardent Verisimilitude

In *Credible Impossibilities* Ruth Scodel explores verisimilitude in classical Greek tragedy. She considers King Creon who sentences his niece to death over a trivial matter: “Faced with an unresolvable contradiction, the spectator may refuse to believe that Creon is a possible person and that the world of the play is a possible world. A loss of narrative credibility can lead to a loss of the audience’s engagement with the work.”[1] The issue of verisimilitude in portrayals of Amazonian deforestation is not far afield. Because a lack of credibility disengages audiences, verisimilitude looms large in the ecocritical enterprise. Rephrasing Scodel: Faced with an unresolvable contradiction, the audience may refuse to believe that Amazonian deforestation is a real problem and that the world of mass extinction is a possible world.

By the definition of ecocriticism proposed in Chapter One, a great work of art would be one that serves as a catalyst for the institutionalization of limits on human activities in the Amazon basin. The threats will vary over time and with the market prices of commodities. Sometimes the threat *du jour* will be timber; other times, cattle or gold. Today it is soya (*Glycine soja*)[2]. Because many interests are vested in exploiting the Amazon for timber, etc., the institutionalization of limits is a tall order. As soon as any work that advocates limits takes off, its verisimilitude will be called into question. To disengage the audience from the work, the moneyed interests will put into high relief any inconsistency. For example, the portrayal of Chico Mendes in the HBO movie *The Burning Season* contradicts the portrayal of Chico in the book from which the movie was adapted. A Brazilian politician who has been co-opted by cattle interests could point to the

factual errors in the movie in order to erode any public opinion *pro* limits or, in this case, *contra* forest conversion. Thinking strategically, ecocritics must weigh heavily the criterion of verisimilitude in choosing which works of art stand some chance of withstanding a nit-picking review.

Albeit important, verisimilitude is not the only criterion. Others exist that must be jointly considered. Scodel identifies three: “While the academy does not interest itself in the practical credibility of narratives, audiences regularly make three demands of any narrative: that it be interesting, that it be credible, and that it be morally acceptable.”[3] Her criteria invite the queries: What is interesting? What is credible? And what is morally acceptable? Suddenly, we seem to go nowhere. What is interesting, credible, and morally acceptable seem hopelessly contingent on who is answering the question. However, such an opinion reflects our own professional trajectories in the humanities and social sciences. Evolutionary biologists may be more sanguine. A framework exists that puts the broad patterns of human behavior within its lens of resolution. That framework is natural selection. Applying the most famous quotation in all of biology to art, “nothing in biology makes sense except in the light of evolution” the evolutionary psychologist David P. Barash and his daughter, Nanelle, consider *The Aeneid*. Their conclusion is that the resilience of the epic poem owes to its adherence to behaviors that would have been stable over the millions of years of hominid evolution. “In many ways, Virgil seems more attuned to humanity’s animal nature than are modern readers.”[4]

The skeptical reader may be wondering “What does an incipient literary Darwinism have to do with Amazonian deforestation?” Our answer: almost everything. [5] Even in the worst-case scenarios of habitat destruction, large tracts of the Amazonian forest will survive for another hundred years or so. Thereafter, the issue of this book is moot. Mass extinction will be a *fait accompli*. Although the cultures and even the languages of the Amazon basin will change dramatically over the next hundred years, the broad patterns of human behavior will not---they have evolved over hundreds of thousands, even millions of years. This means that if we can identify contemporary works of art which promote the limit of “no deforestation” and are

“attuned to humanity’s animal nature,” the ensemble will have the necessary shelf life to promote limits while significant forest canopy still exists. A simple example can make this clear. Consider *The Old Man who Read Love Stories* written in 1989 by Luís Sepúlveda. As we will elaborate in Chapter Four, *The Old Man* is exceptionally attuned to humanity’s animal nature. From the framework of evolutionary psychology and the scientific projections of habitat loss in the Amazon, the ecocritic suspects

1. there will still be primary habitat to save in the Amazon basin in 2014 and
2. *The Old Man* will still evoke emotion (be interesting, credible, and morally acceptable) as human behavior will not have evolved between 1989 and 2014, even though there will probably arise, in the lapse of just one human generation, cybercafés in every river port, and live transmissions of DeutscheWelle, TVCinque, and the BBC World, watched from ramshackle bars and frontier brothels.

One can make the same point by counterexample. A work of art that is verisimilar with respect to the causes and effects of deforestation (e.g., the exploitation of timber, etc.), but not “attuned to humanity’s animal nature” will probably not motivate people now or in the future. This is the problem with the Venezuelan film “The Voice from the Heart.” The characters are caricatures: the bereaved and sensuous widow who is a one-woman radio station; the righteous and handsome photojournalist who is really an undercover activist; the quixotic matador battling not windmills, but semi-trailers hauling logs, and so on. Although one can laud its message of limits, one doubts that the film will arouse much passion to promote any limit now or in the future.

Oh, pity the poor political artist! He or she is navigating somewhere between the Scylla and Charybdis of ecocriticism. On the one side lies a droning sermon (morally acceptable but not interesting) and on the other, a wild distortion of reality (not credible and therefore easily dismissed). E.O. Wilson expresses well the challenge:

The creative writer, unlike the scientist, seeks channels of cognitional and emotional expression already deeply carved by instinct and culture. The most successful innovator in the literature is an honest illusionist. His product, as Picasso said of visual art, is the lie

that helps us to see the truth. Imagery, phrasing, and analogy in pure literature are not crafted to report empirical facts. They are instead the vehicles by which the writer transfers his own feelings directly into the minds of his readers in order to evoke the same emotional response. [6]

As ecocritics, we must identify artists who have passed through the straits and transferred “feelings into the minds of [audiences which] evoke the same emotional response” as advocates of limits. Although we recognize that there are many emotions, we will pay special attention to one: “biophilia.” It is Wilson’s neologism for “the innate tendency to focus on life and lifelike processes.”[7] Before we begin, the reader must be persuaded that all this is worth the effort. Recalling the protests of Glotfelty and Head cited in Chapter One, the skeptic may ask: Will the analysis be “unconscionably frivolous” and “self-serving”... “channeled in the direction of a contained professionalism”? Or, will it make some real difference? Such skepticism is well founded. The track record of political art on Amazonian deforestation is dismal. To date, none has resulted in even a national conversation about a moratorium much less an international one. Nevertheless, a great deal may be learned from the history of other social movements which took form in the crucible of political art.

Potential Models of Political Art

Silent Spring, published in 1960 by Rachel Carson is an obvious candidate. [8] The reasons why are summarized by Garrett Hardin [the book] was a runaway success; and it cast doubt on that sacred cow, progress-through-technology. Technology was not totally condemned by Carson. Rather, this rational question was raised: what is the balance of good and evil that follows from embracing technology? On the basis of an extensive survey of the effects of a wide range of insecticides and other chemicals applied to various crops, Rachel Carson built up a strong case for the immense harm being done by modern agriculture. The facts had been previously gathered piecemeal by many researchers, but reported in a fragmentary way. Carson brought the evidence together in one place, described it with great skill, and managed to get her argument published in

a very influential magazine, *The New Yorker*. The book that followed was an immediate best-seller. [9] Hardin attributes to Carson "a reversal in the attitude toward ecological innovations (insecticides, dam building, and the like). Just seven years later the National Environmental Policy Act (NEPA) of 1969 extended [the] ‘guilty until proven innocent’ revolution." [10]

From our proposed definition of ecocriticism, the new default position “guilty until proven innocent” qualifies as a limit. Accepting Hardin’s attribution of cause and effect to *Silent Spring*, we may ask: Did *Silent Spring* raise any moral question? Carson’s case against the chemical industry was based on science, not on any moral precept that was not already firmly held by her audience. Carson only had to show that the chemicals were toxic and were being released into the environment, not that releasing toxicity into the environment is immoral. More interesting for political art would be the argument that Carson did not make: that society should abandon pesticides because, say, the idea of industrializing food production destroys the “culture” in “agriculture,” and therefore, is immoral---a precept seldom heard in the U.S. This does not disqualify *Silent Spring* as a model for political art on Amazonian deforestation. Like pesticide poisoning, Amazonian deforestation already violates a host of widely held moral precepts. Nevertheless, we fear that the reporting of such evidence, no matter how skillful, will not affect the limits that must be binding for the Amazon to survive. For example, gold prospectors continue dumping mercury into the tributaries of the Amazon basin despite three decades of magazine exposés. But mercury still happens. [11] What political art needs is an *overarching* moral precept that will organize the limits (over timber, over cattle, over mining, etc) on human activities. The one that has never been fully aired and can be stated simply is this: *all species have the right to continue evolving in their community.*

From the moral precept of a right to existence, *Desert Solitaire* seems more promising than *Silent Spring*. The author Edward Abbey was an iconoclastic nature-writer whose autobiographical nonfiction has inspired a whole generation of “greenies.” Abbey contended, "It is not enough to understand nature; the point is to save it." Whereas Carson engaged her readership through tight argumentation, Abbey preferred irreverence: “I write in a deliberately

outrageous and provocative manner because I like to startle people. I hope to wake up people. I have no desire to simply soothe or please.” Don Scheese classifies Abbey as a "moralist out to convert the American public" and quotes Joseph Sax who aptly describes such preservationists as "...a member of a minority...believ[ing] he speaks for values that are majoritarian. He is, in fact, a prophet for a kind of secular religion." The quote reveals the trouble with choosing *Desert Solitaire* as a model for political art; the book does not so much raise moral questions as it demands allegiance. An *unsympathetic* reader could call it "agitprop"---that wonderful word left to us by the Soviets---"Russian, short for *otdel agitatsii i propagandy* incitement and propaganda (section of the central and local committees of the Russian Communist Party.)"[12] Like Perestroika, sooner or later, debate must begin---and agitprop inhibits it. On a more practical level, *Desert Solitaire* is also disappointing. Other than an occasional torching of luxury homes amidst the redwood forests, Abbey has not motivated much action.[13] The reason goes back to what conservation biologist Michael Soulé said about bad news: "depression inhibits arousal in the limbic-emotional system...consumers don't buy coffins, even when on sale, and voters don't elect prophets of doom." [14] The sarcasm that makes *Desert Solitaire* a hilarious read also leads to the apathy typical of cynicism. Some thirty odd years after its publication, *Desert Solitaire* has even become the object of ridicule from a *sympathetic* press. Sandra Blakeslee titles a *New York Times* piece "Drought Unearths a Buried Treasure" and in the first 100 words tells us: "What Mr. Abbey and The Sierra Club couldn't or didn't do nature has now accomplished. A severe Western drought---some say the worst in 500 years---is shrinking Lake Powell at the rate of up to a foot every four days." [15]

Desert Solitaire was published in 1968, the same tumultuous year that students marched in Washington, D.C. and on Paris. It was also the year that The Club of Rome commissioned Donella Meadows et al. to report on *The Limits to Growth* which was published in book form four years later.[16] Although Abbey's wit did not motivate the public to embrace limits, at least he entertained them. The same cannot be said of *The Limits* which made plain the impossibility of accelerating material aspirations. The multi-authored text was an honest appraisal by top-notch scientists. The message was unwelcome indeed. Perhaps the fault of candor lay not with

the authors or their prose, but in their timing. The American public had not yet arrived at the psychological maturity necessary to process its central idea of thresholds overshoot. Even worse, denial was being celebrated. Voters would elect, two presidential elections later, a candidate bent on revoking the easiest-to-understand limit ever institutionalized in the U.S.: the Corporate Average Fuel Economy standards (CAFE). From an ecocritical perspective, one could say that *The Limits to Growth* failed to abide by the wisdom expressed by Emily Dickinson:

Tell all the Truth but tell it slant---
Success in Circuit lies
Too bright for our infirm Delight
The Truth's superb surprise
As Lightning to the Children eased
With explanation kind
The Truth must dazzle gradually
Or every man be blind [17]

In fielding models of political art, why be so U.S. centric? Amazonian deforestation is not an American phenomenon and it would behoove us to cast our net wide. Likewise, why even be environmentally centric? One should consider social history. For example, *Casa Grande e Senzala (The Master and the Slaves)* is a watershed in the formation of the Brazilian psyche. [18] The author Gilberto Freyre argued that the source of his country's identity lay in centuries of miscegenation and the fusing of distinct cultures. The date of its publication could not have been more prophetic: 1933. Just as Germany was translating latent racism into fascist policy with all its attendant horrors, the polymath Freyre was advocating equality among the races. Unfortunately, for our purposes, the intangible nature of his success frustrates using his masterpiece as a model for political art. Although Brazilian racial attitudes have changed for the better since the debut of *The Master and the Slaves*, the goal of sweeping equality is still an ongoing process and far from complete. The velocity of mass extinction requires that the truth about Amazonian deforestation dazzle gradually but not *that* gradually.

Extinction is no longer measured in millennia but in minutes; approximately one species every twenty minutes. [19] Therefore, in casting our net wide, we should also consider political art that arises from a sense of urgency. The genre associated with AIDS pandemic seems promising. In the early 1980s, a loosely organized group known as ACT-UP emerged in the U.S. Its goal was to change the medical system on many fronts---from drug research priorities to hospital protocols. One of its first chroniclers was Randy Shilts who documented the timeline of the epidemic from patient zero onward, in a spaghetti-like flow of infection. Shilts' thesis was simple: the Reagan government failed to act in a rational fashion, commensurate with the threat to public health. [20] As his non-fiction book *And The Band Played On* became a best seller, fictional portrayals were also appearing. On stage, there was "Angels in America" and at the movies, "Philadelphia." The genre was not just text and film; there were also graphic designs (e.g., an upside down pink triangle) and folk art (e.g., a traveling quilt commemorating thousands of AIDS victims). Did the ensemble contain the homophobia which had once let the band play on? It is hard to say. Although the gay movement has morphed into mainstream society, equal rights for its advocates in the U.S. remain allusive. [21]

The last obvious model that we reject is the filmmaker Michael Moore's first ticket box success: the documentary *Bowling for Columbine*. Contrasting the U.S. and Canada, Moore suggests that the inequities in the U.S. are the source of its gun violence. This and other messages of Mr. Moore have penetrated the political sphere as evidenced by his necessity to travel in the company of bodyguards. Time will tell whether Mr. Moore's political art is a decisive factor in changing the safety net (or lack thereof) in America. One cannot use something as a model of success which has not yet proven to be successful.

The Chosen Model of Political Art

We have chosen *Uncle Tom's Cabin* (UTC) as a model for several reasons. First among them is that the text contains ethos and pathos; it is not skillful journalism (*Silent Spring*), a philosophical treatise (*Desert Solitaire*), social history (*Masters and Slaves*), or an amorphous

agenda of activism (the genre associated with AIDS). Nor is the jury still out on its historical effect (*Bowling for Columbine*). Although UTC pre-dates motion picture technology, it reads very much like a soap opera, thereby facilitating comparisons with modern venues. Complementary to this practical reason is a theoretical advantage. Both *Silent Spring* and *Desert Solitaire* are too close to the nature of our subject (Amazonian deforestation) to isolate and examine the mechanics of persuasion in political art. UTC approximates a scientific “control”--- it is about a different type of horrific system. While *Bowling for Columbine* and *Masters and Slaves* also stand apart, neither has achieved proven results in the time horizon needed to stop mass extinction. In contrast, UTC resulted in historical change which was obvious even *without* the hindsight of history. At a White House reception, Abraham Lincoln supposedly quipped that Mrs. Stowe was “the little woman who wrote the book that started this Great War!”[22] Translated into dozens of languages, UTC was an instant best-seller. One biographer would write "A correspondent, writing of the tardy abolition of slavery in Brazil, which held its chattels after the sister republics of S. America had given them freedom, recently said: ‘Uncle Tom's Cabin’ is a book that still goes marching on. Down in Brazil the emancipation of the slaves was mainly due to an editor who kept his paper red hot with abolition arguments. He did not have much success until finally he printed a translation of ‘Uncle Tom's Cabin.’ Then the people waked up. They cried over the story, and raised such a protest against slavery that the government was forced to abolish it.’"[23] Although the correspondent’s claim is hyperbole, there is no doubt that UTC gelled sentiment against slavery at home and abroad. It figured prominently into the mosaic of variables that led to emancipation. As a model of political art, the task of the ecocritic is to analyze how Stowe achieved that feat. Are there lessons to be learned for the portrayal of Amazonian deforestation? This is not as far-fetched as it may first seem. Both slavery and deforestation are, above all, *systems*.

A caveat is in order. We recognize the unease that our choice will generate. One need only note that UTC has been absent from school curricula in the U.S. for the last half of the twentieth century. The reason for its absence is easy to understand. By modern standards, the characters of UTC are familiar racial and gender stereotypes that have long been effective tools of oppression

in *de jure* and *de facto* segregation and discrimination. Early reviewers of this manuscript asked us why we did not choose something less controversial, something that could capture the full horror of slavery but without all the cultural baggage. Indeed, the very title of Stowe's *oeuvre* is synonymous to a lackey who contributes to his own victimization; for Afro-Americans, it has long been a hurtful epithet. Why not choose something from the forty-volume *Schomburg Library of Nineteenth Century Black Woman Writers*? Or something from the autobiographical works of Frederick Douglass? Better yet, something modern like Toni Morrison's *Beloved*? Or Edward P. Jones' *The Known World*? [24] Our response is simple. We are not studying slavery *per se*, but how the portrayal of an horrific system can help overturn it. [25]

Back to Biology: Analogy vs. Homology

Biologists make a distinction between homology and analogy that is useful in analyzing political art. Analogy is “similarity in function between parts dissimilar in origin and structure; distinguished from homology” which is “the agreement of a part of an animal with a correspondingly situated part of some other animal.”[26] Because similarities can arise from either analogy or homology, the task of the evolutionist is to discern whether the likeness owes to a common ancestor or to a similar solution to the same problem. A favorite example of evolutionists makes plain the distinction. Birds, bats, and flies all have wings, not because they had a common ancestor with wings but because each solved independently the problem of flight. The wings are analogous. Whales, bats, and humans have a similar bone structure in their flippers, wings, and hands because they all had a common ancestor whose forelimb was later adapted for distinct functions, viz., swimming, flying, and tool-making. The forelimbs are homologous. In thinking about UTC and select works of art on Amazonian deforestation, one will be struck by similarities. Are they analogies or homologies? Are the similarities the solution to the same problem (analogies)? Or, a varied expression of the same structure (homology)? Or, are a little bit of both present? For example, the reader's sympathy for Tom in UTC and Antonio José Bolívar Proaño in *The Old Man* is homologous to the extent that it arises from both characters being grandfatherly figures who evoke affection in distinct settings. However, the

sympathy may also be analogous to the extent it arises from the sufferings inflicted by two distinct systems.

To tease out the analogies and homologies between UTC and select works of political art on Amazonian deforestation, one must first accept the classification of UTC as quintessential political art. Typical of scholarly opinion is that expressed by Alice C. Crozier "Uncle Tom's Cabin is a work of providential history which seeks to document the contemporary scene in order to move its readers to return the nation to its true historical course by purging it of the sin of slavery." Regarding verisimilitude, Crozier writes "What is interesting is that the novel was taken to be a factual account of the slave system even by its enemies..."

Yet, despite her familiarity from childhood with some of the best of English literature, Mrs. Stowe did not think of *Uncle Tom's Cabin* at the time she wrote it as a work of literature except in a very secondary sense. She thought of it as a work of salvation. As an author she would have called herself a historian...Mrs. Stowe defines her task as a novelist as that of setting down, in an almost encyclopedic spirit, the institution of American slavery in order to move the nation to recognize, and therefore purge, the corruptions slavery has engendered in the national life...It is no news to anyone that *Uncle Tom's Cabin* is a polemic. [27]

Joan D. Hedrick, author of the most comprehensive Stowe biography, uses an apt simile to capture the political art of UTC: "Just as Karl Marx explained the logic of capital, Stowe explains the logic of slavery." "What made her so radical was that she insisted on putting her ideas into action." [28] From our definition of ecocriticism we can analogize: Stowe wanted her country to live within a limit of freedom which would be binding over generations. The analogy leads to a counterintuitive implication. As a model for Amazonian deforestation, it is fair game to examine the motives of the artist who portrayed the system she hoped to change.

No, no, no! We can hear the literary critics groan. Just as many readers will be uneasy with the choice of UTC, the critics of ecocritics will be just as uneasy with any examination of the

motives of an author. [29] D.H. Lawrence expressed such reservations when he said “Never trust the artist. Trust the tale. The proper function of a critic is to save the tale from the artist who created it.”[30] Our definition of ecocriticism turns Lawrence’s wisdom on its head. The work is the medium by which the artist promotes the message of limits. One of the functions of the ecocritic is to help integrate the tale with the artist who told it. In other words, the art is a means to a political end. We see this in Stowe. UTC became a platform from which she effectively exhorted the public to end slavery. Inverting D.H. Lawrence’s dictum: “The proper function of the ecocritic is to enhance the message of the tale by understanding the artist who created it.”

Stowe chose a gentle old man and devout Christian as her protagonist. His name was Tom and addressing him as “Uncle” was a term of endearment. His travails begin when he is sold down river by his financially-strapped master. Each chapter is a vignette involving Tom or a lateral character. The chapters were serialized in *The National Era* in 1851 and 1852 and serialization itself holds tremendous lessons for political art:

1. No money is spent in purchasing the text (e.g., no marginal cost for the consumer whenever the newspaper is bought routinely or through subscription)
2. No nuisance is incurred in locating the seller of the text (e.g., vendors of newspapers are almost ubiquitous) and
3. Little time is taken in reading the text (e.g., short chapters which can be read in less than an hour).

These three advantages are accentuated by a fourth whose importance is paramount:

4. Synchrony of the reading public.

People in distinct walks of life are reading the same text at the same time and, therefore, can debate its message. In the case of UTC, the weekly installments became a springboard for heated disagreements. Parenthetically, we marvel about the conditions under which Stowe wrote those chapters “...[a]s long as the baby sleeps with me nights I can’t do much at any thing---but I shall do it at last. I shall write that thing if I live.”[31] With the last installment completed in 1852 and the immediate publication of the series in book form, UTC had become *the* topic of discussion

"The tremendous sales of the novel at the time, its contemporary reputation among critics both English and American, and its allegedly explosive political influence seem to be due to the inflammable state of the public mind... only nine years before the outbreak of The Civil War." [32] Expectedly, apologists for slavery would attack UTC through the same medium---the newspapers. Criticism focused not on the artistic merit of the portrayal but on its accuracy, in other words, its verisimilitude. Inasmuch as the story was appearing in newspapers, the question of its accuracy was not inappropriate. Stowe biographer Catherine Gilbertson writes:

She found the attacks against her summarized in an article in *New York Courier and Enquirer*. It declared that in depicting the cruel treatment of slaves, the separation of slave families, and their want of religious education, Mrs. Stowe had not only displayed 'a ridiculously extravagant spirit of generalization' making 'exception or impossible cases' appear representative of the whole situation, but had described atrocities which could not have happened, because the southern states had passed laws against them. The article also accused her of overdrawing her characters, making her black people too white and her white people too black. It deplored her malicious attitude toward the clergy. [33]

Stowe took umbrage and, just a year after the serial, dashed off a 262-page compendium, double columned, and much of it in type font 8. Its title: *A Key to Uncle Tom's Cabin Presenting the Original Facts and Documents upon which the Story is Founded together with Corroborative Statements verifying the Truth of the Work*. After deliberating over what evidence to include, she would comment "if my representations have erred anywhere, it is by being under rather than overcolored." [34] One can say today, a century and a half later, that Stowe, in writing both UTC and *A Key*, had already intuited the three demands by an audience as outlined by Scodel ("that it be interesting, that it be credible, and that it be morally acceptable.") In retrospect, *A Key* did not only substantiate what was already being taken as a factual portrayal of slavery (UTC), but also served as evidence that the author accepted that, in political art, the burden of proof falls on the author.

The discomfort that mid-nineteenth century America felt about discussing slavery has an homology with the discomfort the world feels today about discussing Amazonian deforestation. To discuss either in mixed political company seems impolite. To find the common origin, one must recognize that slavery was an unethical expression of capitalism----money embodied in human flesh. "Mrs. Stowe's central point about slavery [is that] it survives in America because there is money in it. And that all Americans, North or South, slave state or free, are joined in a race for the Almighty Dollar." [35] Stowe illustrates the degree of guilt through many characters, from slave traders to slaveholders and then to every citizen in the country who tolerates the slavery that she called despotism. As long as the system existed, everyone who did not fight against it was an accomplice. A century before Paulo Freire would make his mark elaborating this very same point, Stowe knew that neutrality was not an option; one was either on the side of the abolitionists or on the side of the slave-holders. To expose the illusion of neutrality, Stowe juxtaposed the vulgarity of the slave trader (Haley) with the refinement of the slaveholder (Shelby), forced to sell due to indebtedness. "So long as your grand folks wants to buy men and women, I'm as good as they is...t'an't any meaner sellin' on 'em, than't is buyin!" (114). The technique was brilliant: the reader sees the logic of the slave-trader and is, squeamishly, forced to agree. This same point can now be made about Amazonian deforestation. It continues because there is money in it and the homology manifests itself in the complicity of today's consumers. It leaps at us: "So long as your grand folks wants to buy beef, soya, and gold [the list can go on and on] t'ant no meaner clearin' the forest than financin' its clearin'!"

Through an ear for dialog, an eye for detail, and above all, the heart for others, Stowe achieved *ardent verisimilitude*.



Chapter Three

Ecocriticism versus the Economics of Deforestation

Harriet Beecher Stowe thought that slavery was profitable. What she doubted was its financial sustainability. In *A Key*, she writes:

Slavery being an unnatural and unhealthful condition of society, being a most wasteful and impoverishing mode of cultivating the soil, would speedily run itself out in a community, and become so unprofitable as to fall into disuse, were it not kept alive by some unnatural process. What has that process been in America? The answer is in a word. It is the extension of slave territory, the opening of a great Southern slave-market, and the organization of a great internal slave-trade, that has arrested the progress of emancipation. (279)

Students of sustainable development will be struck by a similarity. Whereas abolitionists had attributed the profitability of slavery to its expansion into virgin territory (e.g., Kansas), economists are now attributing the lack of profitability of tree plantations to the felling of timber in virgin territory (e.g., the Amazon). Ramón López puts it this way:

Private plantation timber production requires costly investments and, therefore, can hardly compete with timber extracted from open-access or semi open-access forest lands where the only effective cost is the cost of extraction and transportation. [1]

The relevance of the analogy can be seen in its policy implication: prohibition of slavery in the territories IS TO undermining the profitability of the whole institution AS prohibition of timber in the Amazon IS TO enhancing the profitability of tree plantations in lands already deforested.

The power of analogies increases as one delves into the respective contexts of the things analogized. In the first one hundred years after emancipation, historians believed that slavery was on its way out---economically moribund---leaving the impression that the bloody Civil War could have been avoided. Such an unexpected conclusion makes for a memorable High School lecture and resonates with the home-spun homily that “patience is a virtue.” If only it would have been so! In the late 1950s, a group of young economists began to test that and related interpretations about slavery. Robert Fogel and Stanley Engerman were two of the *enfants terribles* who would call themselves cliometricians. Meticulously, they culled a huge body of data from census schedules and plantation records and applied recent advances of statistical techniques and mathematical modeling. As we shall develop, their statistical inferences about the slave system have broad implications for ecocritical approach to the deforestation system. In 1974, Fogel and Engerman prioritized their conclusions in the opening pages of *Time on The Cross*. Their first two findings have special relevance:

1. Slavery was not a system irrationally kept in existence by plantation owners who failed to perceive or were indifferent to their best economic interests. The purchase of a slave was generally a highly profitable investment which yielded rates of return that compared favorably with the most outstanding investment opportunities in manufacturing.
2. The slave system was not economically moribund on the eve of the Civil War. There is no evidence that economic forces alone would have soon brought slavery to an end without the necessity of a war or some other form of political intervention. Quite the contrary; as the Civil War approached, slavery as an economic system was never stronger and the trend was toward even further entrenchment. (1974a, 4-5).

Both points invite us to further explore the similarities with the Amazonian deforestation system. Classifying those similarities as analogies and/or homologies is necessary to frame the debate of ecocriticism versus the economics of deforestation. As we shall argue, the dire need for a new school of thought emerges.

Contextualizing the Case for a New School of Thought from Economics

Economists have long argued that habitat degradation is profitable largely due to artificial perversities that subsidize logging and subsequent colonization. [2] Eliminate those subsidies and one will *reduce* the level of deforestation although not end it. Polluters must also pay. For the Amazon, those polluters include colonists who convert trees into CO₂ through slashing and burning, and then convert the subsequent pasture into CH₄ through the flatulence of their cattle. However, even if we eliminate subsidies and make the polluters pay, more reforms will still be needed. Those who generate benefits for others from not slashing and burning must also be paid. For example, any transnational company that researches and develops a product from the genetic resources of the Amazon basin should compensate the countries of origin which forego logging and colonization. In technical language, the byproducts of an economic activity are known as “externalities,” be they negative (e.g., pollution) or positive (e.g., access to genetic resources). The negative ones should enter the costs of production and the positive ones should be sold in the market place.

The internalization of externalities may sound logical but the trouble lies in implementation. Internalization is often prohibitively costly. Let us return to our first example of the colonist who slashes and burns. That individual is deep in the jungle where detection and enforcement may be more costly than the damage done by that one individual.

Facilitating a market for the positive externalities is also no picnic. For example, where do we go to pay for our peace of mind in just knowing that biodiversity exists? A snappy reply would be “The Nature Conservancy,” but we won’t let up. What about our neighbors? They also derive peace of mind. They also get solicitations from The Nature Conservancy. While we duly send our check in the self-addressed envelope, they peel off the stamp! We feel like schnooks and therein lies the problem: *free-riding*. It is the Greek Chorus in Environmental Economics 101 and the rationale for taxation and subsidization.

Before heeding the chorus' refrain "tax and subsidize," market enthusiasts will first improvise---dreaming up ways to internalize the externalities. Let us return to our example of the transnational corporation who researches genetic resources in order to develop a biotechnology which it will patent and sell at a monopoly price. To make such a corporation pay for access, countries of origin can cartelize their genetic resources and divvy up the oligopoly royalty. [3] But values like "just knowing that some particular ecosystem exists in a relatively undisturbed state" [4] have no market solution. Ironically, mainstream economists will not despair. *Au contraire*, like a 1950s TV cartoon, the dollar signs ring up in their eyes. The estimation of non-market values requires sophisticated techniques (e.g., contingent valuation) which are sufficiently obtuse to preclude any public scrutiny. With vaulting ambition, an agenda emerges among ecological economists: decompose market and non-market values; monetize them; and then aggregate the component parts into "the total value of biodiversity" (see Fig. 3.1.). [5] And then, what? Yes, then what?

Joan Robinson was arguably the best student of John Maynard Keynes who was, without doubt, the most outstanding economist of the twentieth century. She would joke that "the reason to study economics is...to learn how to avoid being deceived by economists." [6] The public should take her advice *seriously*. It is being led up the garden path with the total economic value of biodiversity. Consider again the advice of Prof. López,

In principle, the global and national interests of most of the heavily forested countries of South America are not compatible. Serving the world interest presumably requires a much greater natural forest reserve than serving mainly the national interests. Since the forests belong to the countries, not to the world, the world would have to compensate tropical countries for preserving a larger forest area than the optimal dictated by national interest [*italics ours*]. [7]

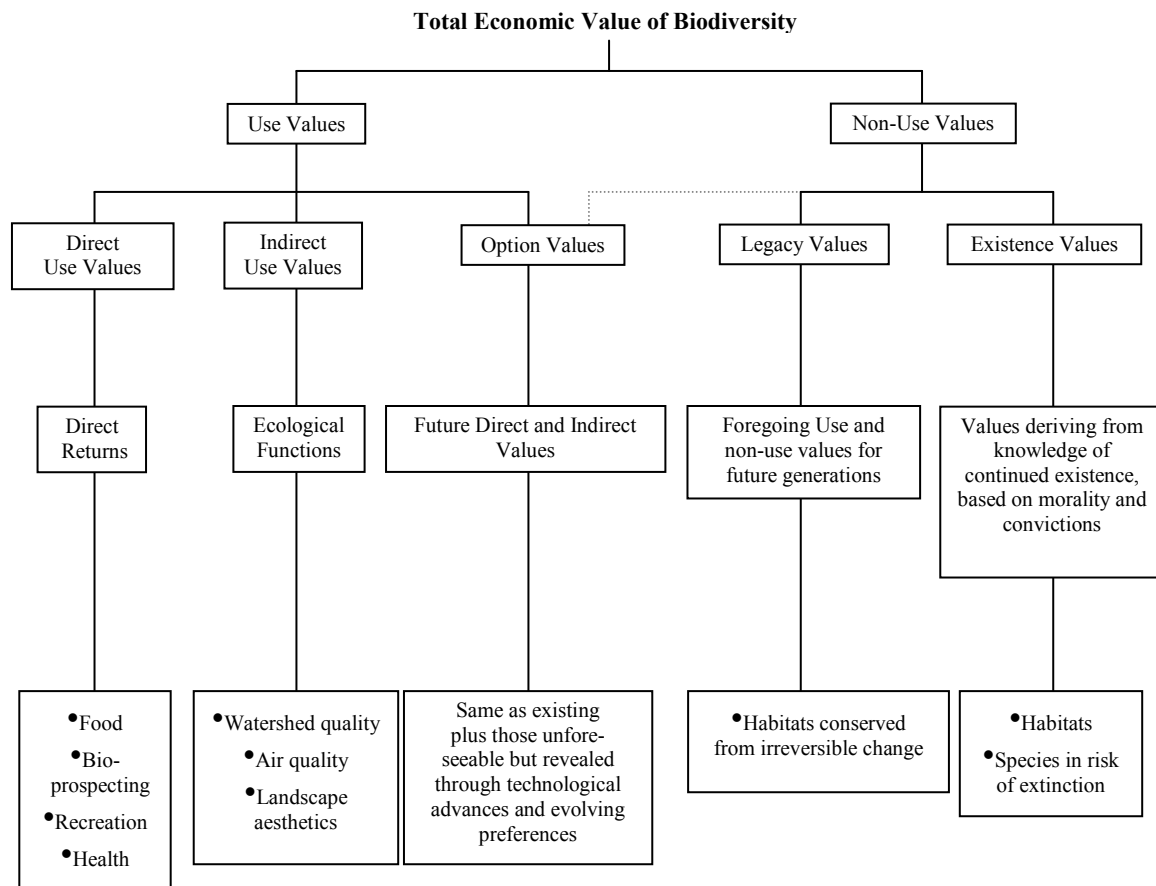


Figure 3.1

The passage is dense. To take away a policy implication, even the professionally trained economist will have to re-read it. Implicit is a cost-benefit analysis which finds the level of forest conservation which behooves the nation and another, higher level which behooves the world. [8] The costs in the cost-benefit analysis are the alternatives to which the land could be put (e.g.,

timber, cattle, soya); the benefits are the total value of biodiversity (e.g., the cascade of use and non-use values in Fig. 3.1.). One conserves habitat until the marginal benefits of conservation are no longer greater than its marginal costs. In other words, one keeps conserving forests until the last tree slated for conservation no longer generates a net benefit for society. Logically, the complement of this optimal level of forest conserved will be the optimal level deforested.

The conservation biologist will prick up her ears. The optimal level of conservation/deforestation corresponds to a level of extinction which can be calculated by the species-area equation of biogeography. [9] In other words, the biologist can estimate how many *unknown* species will vanish by just knowing how much area will be deforested. Suddenly, the “optimality” of economic theory is Orwellian. David Ehrenfeld was the first biologist to perceive the danger in the valuation of biodiversity: “by assigning value to diversity we merely legitimize the process that is wiping it out.” [10]

Students of sustainable development would do well to apply Ehrenfeld’s insight to the debate over Amazonian deforestation. Any cost-benefit analysis, be it for timber, cattle, or soya, is merely legitimizing the extinction of species for an ephemeral increase in material well-being which, in all likelihood, is a miscalculation anyway. Students of slavery will recall a similar defense of the *status quo* was made with respect to bondage. The analogy can shed much light on what should be a legitimate economics of biodiversity.

In the first chapter of UTC, Stowe portrays the genteel patriarchy of Kentucky and the material well being of Tom and the other slaves. Given the harshness of mid-nineteenth century life in northern factories, the Shelby plantation must have seemed quite idyllic for many readers. If one accepts the hideous and hidden premise that “there’s nothing wrong with slavery” which Stowe did not, then one can begin to justify the slave system by the benefits of being a slave, i.e., material well being. In many ways, all the subsequent chapters of UTC are a roller coaster ride down that slippery slope of “the benefits of being a slave compensate for the costs of enslavement.” Our point is that the decision to deforest, like that of emancipation, cannot be

argued on the basis of (mis)calculated costs and benefits. Deforestation like slavery is a moral question and the Total Value of Biodiversity is no more germane to the issue of land use than is the material welfare of a slave germane to the issue of human liberty. [11]

Ehrenfeld goes further. He suggests that the economic exercise of valuation *promotes* extinction: “by the time we are finished assigning value, I am afraid we won’t have much left.” [12] Again, we can look toward Stowe-the-political-artist for similar wit and wisdom. She recognized the diversionary traps in the debate over emancipation and skillfully sidestepped them: “She would like to see the political leaders of the nation speak and behave as she believes their grandfathers did. But she has no program for the freeing of the slaves.” [13] By not providing the details of the solution, viz., a free society, Stowe afforded others the possibility to work them out in the light of experimentation.

Abstractly, one can find an analogy between conservation and emancipation. It reduces to competing default positions: let the solutions determine the limit or let the limit determine the solutions. First know how to absorb former slaves into a free society and then emancipate OR first emancipate and then figure out how to absorb them. First know the total value of biodiversity, conserving whenever the marginal value is superior to alternative uses OR first impose the limit and then figure out how to make value out of the biodiversity protected. All this may be sounding just too abstract for the average reader. Do we have any example of a country which chose between the competing default positions? Happily, we do: Costa Rica. In the early 1970s, the government of Costa Rica boldly set aside one quarter of its territory. It would be protected as parkland. [14] The opportunity costs of the decision were huge; the people were poor and dedicated to agriculture. Nevertheless, the policy worked and Costa Rica has experienced a remarkable economic development.

Contextualizing the Case for a New School of Thought from Ecocriticism

Our definition of ecocriticism, elaborated in Chapter One, is rigid with respect to what economic trajectories are conceivable for the future of the Amazon. The limit of “no deforestation” must be binding over generations. End of story. In contrast, economists seem so much more open, so much more flexible, so much more *tolerant*. They will entertain a menu of trajectories each containing distinct flows of costs and benefits over time. Quickly comes the task that is their daily bread. How to compare the trajectories? Ecocritics may get mesmerized as economists explain that the choice among trajectories depends on the interest rate at which the future benefits and costs are *discounted*. At an interest rate of 5%, 95 cents invested today would render a dollar next year and, therefore, a dollar collected next year is roughly equivalent to 95 cents paid today. At an interest of 10%, the equivalence between then and now drops to 91 cents. By *discounting* we can sort through the alternatives and choose the best, i.e. the trajectory with the highest net present value.

The implication of such calculations should not escape the ecocritic just as the implications of analogous calculations did not escape Stowe. Trajectories which generate benefits well into the future are highly disfavored. In response to the argument that slaveholders would not mistreat their slaves because it would not be in their long-term interest, Stowe quotes a soft-hearted planter:

There are two systems pursued among us. One is, to make all we can out of a Negro in a few years, and then supply his place with another; and the other is, to treat him as I do. My neighbour on the next plantation pursues the opposite system. His boys are hard worked and scantily fed; and I have had them come to me, and get down on their knees to beg me to buy them.’ Mr. Barrows says he subsequently passed by this plantation, and that the woe-struck, dejected aspect of its labourers fully confirmed the account. He also says that the gentleman who managed so benevolently told him, ‘*I do not make much money out of my slaves*’ (italics ours) (A Key 73).

This same conclusion, less anecdotal, can also be found in *The Suppressed Book on Slavery!*, “Recently, at a meeting of the Planters in South Carolina, the question was seriously discussed, ‘whether the Slave is more profitable to the owners, if well fed, well clothed, and moderately

worked; or, made the most of at once, and exhausted in some five or six years.’ The decision was in favor of the last alternative!” [15]

Be it Amazonian forests or human flesh, whenever one discounts the future flows of benefits and costs, the decision favors trajectories that use up quickly the object discounted. The higher the discount rate, the quicker is the exhaustion. Ehrenfeld highlights this point by citing Colin W. Clark who was the first economist to formalize how discounting spells extinction:

The question was whether it was economically advisable to halt the Japanese whaling of this species in order to give blue whales time to recover to the point where they could become a sustained economic resource. Clark demonstrated that in fact it was economically preferable to kill every blue whale left in the oceans as fast as possible and reinvest the profits in growth industries rather than to wait for the species to recover to the point where it could sustain an annual catch. He was not recommending this course--- just pointing out a danger of relying heavily on economic justifications for conservation in that case. [16]

One hundred and twenty years before Clark would work out the math on whales, Stowe had already deduced the same result for slaves. She exposed the economic rationale of working someone to death and Clark, the rationale of harvesting a species to extinction.

Given that the logic of slavery and that of deforestation are identical, it should also come as no surprise that much of the language is also identical. Specifically, we refer to the nomenclature of capital. [17] Fogel and Engerman write “Nobody doubts that human beings were a form of capital in slave society” (1974a, 233) [18] We prove them wrong with our own existence---we doubt that human beings were *universally* regarded as a form of capital by slave society---discounting notwithstanding. Indeed, the crux of the abolitionist literature is that slaves were not capital. [19] One need look no further than the title page of *My Bondage and My Freedom* in which Frederick Douglass cites the poet Samuel Taylor Coleridge. “By a principle essential to christianity, a PERSON is externally differenced from a THING; so that the idea of a HUMAN BEING, necessarily excludes the idea of PROPERTY IN THAT BEING.” [20] Now it is

incumbent on ecocritics to show that classifying the Amazon as “natural capital” dehumanizes all who believe they have “PROPERTY IN THAT BEING.” [21] Although the Trojan Horse of “natural capital” is already inside the gates of environmentalism, we urge one and all to roll the monstrosity back out. [22]

In the edited volume *Biodiversity*, E. O. Wilson comments *en passant* that “In the end, I suspect it will all come down to a decision of ethics...” [23] Wilson is referring to the mass extinction crisis but, as our analogy shows, he could have just as easily been talking about slavery. The ethic that drove emancipation was not the material well-being of the slaves; it was the idea of freedom for all regardless of material well being. Liberty would become the limit under which modern economies would have to become organized. In the language of the philosopher John Rawls, that limit was a considered judgment which would hold firm and be non-negotiable. [24] Now is the time to reflect on the ethics of Amazonian deforestation and make non-negotiable the right of species to continue evolving in their communities. Given the high endemism of the Amazon, the ethic implies the limit of no deforestation. But why that limit now? And how do we impose it?

Answers to both questions are suggested in “the tragedy of the commons” first articulated by Garrett Hardin in his famous article of the same title in the journal *Science*. [25] The tragedy refers to the aggregate onslaught of every individual pursuing his or her own selfish interests over resources that are open access. Each person thinks “so far, so good”...until it is too late and the resource base collapses. With respect to the Amazon, people have exploited the region for millennia and without mass extinction. Fortunately, their numbers were small and their economy, mostly extractive and nomadic. For tens of thousands of years, an ethic of the commons may have been irrelevant for species to continue their evolution. It is only since the mid-twentieth century that highways have portended collapse as habitats are converted pell-mell for pasture, crops, dams and so on. Nonchalantly, we have entered into what is the sixth mass extinction crisis in the 500 million years of the paleontologic record. [26] Given the scale of the problem, an ethic based on the right of species to continue their evolution, couched in the logic of the

tragedy of the commons, also makes a great deal of common sense. Herschel Elliot and Richard D. Lamm propose how:

As Hardin suggested the collapse of any common resource can be avoided only by limiting its use. The ethics of the commons builds on his idea that the best and most humane way of avoiding the tragedy of the commons is mutual constraint, mutually agreed on and mutually enforced. [27]

Economics *vs.* Ecocriticism or Science *vs.* Rhetoric

A conflict exists among conservationists. Some believe that more science is now needed to dismantle the deforestation system while others believe that an obsession with science obfuscates the rhetoric necessary for political reform. The contested interpretations of slavery may elucidate how the conflict will play out within conservation circles. In the prologue to the supplement of *Time on the Cross*, subtitled, *Evidence and Methods*, Fogel and Engerman relate a heated exchange at a professional conference in 1967:

What we did not recognize, until it was too late, was the transformation in the tone and character of the discussion. The subtle tension that marked the opening of the meeting gradually changed into mutual irritation. Some of the critics were offended by the cold, detached attitude of the cliometricians. Slavery was a dirty business, one that of necessity had to arouse the passions of a decent man. Instead of anger, they were confronted with what almost appeared to be our fascination with a cruel system of human bondage. We, on the other hand, felt that the critics were much too emotional, too visceral. Our critics were overly concerned with 'what ought to have been' rather than 'what actually was.' It was pure romanticism, we were convinced, that caused them to blanch before the unpleasant possibility that a backward political system, a bad social system, and a reprehensible moral system might nevertheless be a vigorous, deeply entrenched, and rapidly growing economic system (1974b 16).

No doubt the scientific approach of the cliometricians has been fruitful in ascertaining the reality of the slave system. It helps dispel the cynical myths that

- Union soldiers, fired up by abolitionist presses, died in vain;
- slaves would have soon been freed anyway;
- the rising tide of sentiment pro-abolition in the North had little to do with secession of the Confederate States in the South.

So far, we have used slavery to project analogies forward, we now turn the tables and use Amazonian deforestation to project analogies back. For the last two decades scientists have been measuring the multiple causes of Amazonian deforestation, just as the cliometricians spent the last five decades studying slavery “in as dispassionate a manner as possible” (Fogel and Engerman 1974b, 3). However, the findings on Amazonian deforestation, no matter how persuasive to other “cold [and] detached” scientists, have not persuaded governments one iota to impose the necessary limits. The opposite seems to be happening. “Avança Brasil” (Forward Brazil) is an ambitious highway program which was inaugurated under the neoliberal presidency of Fernando Henrique Cardoso (1994-2002) and has made an all-too-easy transition under the left-leaning Luiz Inácio Lula da Silva (2002-present). [28] Inasmuch as science had firmly established by the 1980s that new highways were the leading cause of deforestation, [29] “Avança Brasil” is a ringing indictment against prioritizing science in the struggle to dismantle the system. [30] If science cannot persuade an illustrious sociologist like Professor Cardoso, then what chance does it have with an ordinary worker like Lula who holds only a primary school education? And the body politic in Brazil is not atypical of the body politic elsewhere. Looking backward, had cliometricians existed in 1851 and reported their statistical inferences in the same newspapers in which Stowe serialized *Uncle Tom’s Cabin*, we doubt any positive effect would have ensued. On the contrary, the statistical evidence of the material wellbeing of slaves would probably have been cited by the slaveholders to justify the *status quo*.

Why does science fail to persuade? E.O. Wilson finds the answer in evolution

To enjoy [the scientific method] while maintaining an effective critical attitude requires mental discipline. The reason, again, is the innate constraints on the human brain. Gossip and music flow easily through the human mind, because the brain is genetically predisposed to receive them....Trust me: physics is hard even for physicists. [31]

Similarly self-effacing, is a complementary point made by Fogel and Engerman

To many humanists, the work of the ‘softer’ social scientists frequently appears pretentious. Very often one has to work extremely hard to decipher the jargon of a social scientist, only to discover a generalization about human behavior previously noted by Shakespeare, with fewer footnotes but with much greater wit and elegance (1974b Supplement p. 8).

To understand why science fails to persuade in matters of public policy, we shall take one last stab at the controversial issue of the material well being of slaves. It is a perfect analogy for the economics of deforestation. Based on rigorous analysis, Fogel and Engerman intone

...the evidence that is beginning to accumulate suggests that the attack on the material conditions of the life of blacks after the Civil War was not only more ferocious, but, in certain respect, more cruel than that which preceded it (261, 1974a).

None of what they proved statistically was really new. The green reader can stumble across the equivalence of Fogel and Engerman’s empiricism in John Muir’s *A Thousand-Mile Walk to the Gulf* but without all those mind-numbing statistics. The entry for October 3, 1867 reads:

Toward evening I arrived at the home of Mr. Cameron, a wealthy planter, who had large bands of slaves at work in his cotton fields. They still call him ‘Massa.’ He tells me that labor costs him less now than it did before the emancipation of the negroes. [32]

What the cliometricians did was shore up the accurate impressions of such observations: “Arguments that rest on impressionistic fragmentary evidence must be considered to be on a relatively low level of reliability, regardless of the objectivity of the source of the evidence” (Fogel and Engerman 11, 1974a). Muir could be 100% correct, but would and should be dismissed by scientists because he had no more evidence than a hearsay anecdote. The counterintuitive lesson is that science and rhetoric need not be at loggerheads. One can select works of art that accurately represent the causes and effects as established in the sciences while also meeting the other criteria that audiences demand for entertainment, viz., that it be interesting and morally acceptable. To close our example about the material well being of slaves, one could

engage the audience with the observation of Muir in his delightful *A Thousand-Mile Walk to the Gulf* and then defend its verisimilitude with the empiricism of Fogel and Engerman in their sobering *Time on the Cross*.

We see in Stowe an approximation of our ecocritical approach. In Chapter X of *A Key*, Stowe takes care to identify a distribution of behavior among the slaveholders. She distinguishes what is representative (i.e., the median of the distribution) from what is merely anecdotal (i.e., the tail end of the distribution). Regarding the treatment of the slaves, she spots a bimodal distribution, “As St. Clare and the Shelbys are the representatives of one class of masters [the benevolent], so Legree is the representative of another [the malevolent]” (67). But Stowe’s explanation is not just a snapshot of the St. Clares, Shelbys, and Legrees at one moment in time. She examines how preferences are formed and sees in Legree a person who is not peculiar to the backwaters of Louisiana. He is homologous to others who lack the opportunity to realize their malevolent potential.

Are there such men as Legree? Let any one go into the low districts and dens of New York, let them go into some of the lanes and alleys of London, and will they not there see many Legrees?...The only difference is this---that in free States Legree is chained and restrained by law; in the slave States, the law makes him an absolute, irresponsible despot (*A Key* 69).

The limit Stowe invokes is the law. She ends the chapter by citing a Professor Ingraham who paints a cheerful picture of how the slaves live. Decades before her contemporary Sir Francis Galton discerned all the properties of the normal distribution, she located Ingraham’s commentary on a tapering tail end of slaveholder behavior:

The writer [herself, Stowe] would not think of controverting the truth of these anecdotes. Any probable amount of high-post bedstead and mosquito ‘bars,’ of tobacco distributed as gratuity, and verandahs constructed by leisurely carpenters for the sunning of fastidious Negroes, may be conceded, and they do in no whit impair the truth of the other facts. When the reader remembers that the ‘gang’ of some opulent owners amounts to

from 500 to 700 working hands, besides children, he can judge how extensively these accommodations are like to be provided. Let them be safely thrown into the account for what they are worth. At all events, it is pleasing to end off so disagreeable a chapter with some more agreeable images (82-83).

With the benefit of hindsight, we are in awe of Stowe's acumen. A century before Leon Festinger discovered "cognitive dissonance," [33] Stowe had already perceived how denial of evidence would thwart efforts to motivate action. To her contemporaries who dismissed her portrayal, she would do exactly what psychologists now recommend. In the following passage from *A Key*, we see how she would change cognitions ("the statistics on this subject"), add cognitions ("take information where we can get it") and alter the importance of existing discrepant cognitions ("abolitionists"):

Every Christian ought thoroughly, carefully, and prayerfully to examine this system of slavery. He should regard it as one upon which he is bound to have right views and right opinions, and to exert a right influence in forming and concentrating a powerful public sentiment, of all others the most efficacious remedy. Many people are deterred from examining *the statistics on this subject*, because they do not like the men who have collected them. They say they do not like *abolitionists*, and therefore they will not attend to those facts and figures which they have accumulated. This, certainly, is not wise or reasonable. In all other subjects which deeply affect our interests, we think it best to *take information where we can get it*, whether we like the persons who give it to us or not (497 italics ours).

Her argument gained traction and was quickly absorbed into the abolitionist genre. In *The Suppressed Book About Slavery!*, Carleton writes

The Rev. Henry Ward Beecher, in a letter to the New York *Independent*, of September 4, 1856, says:---"The most miserable creatures that we know of are those who attempt to unite a love of *Slavery and of Liberty*...Every day, we meet men who hate Abolitionists more than they love liberty. They turn away from every step toward Liberty with aversion. They are eager to believe falsehood against Anti-Slavery men. They are

reluctant to believe the truth. When any event occurs tending to deepen the public feeling in favor of liberty and against Slavery, they refuse to aid in publishing it. They eye it askance, with sneering jealousy. But the moment that means and opportunity are afforded to discredit such movement, they become zealous and active.’ [34]

The reader may be wondering...all very interesting...but aren't we veering off track from ecocriticism vs the economics of deforestation? To see the supremacy of rhetoric in dismantling an horrific system, let's do some word substitutions. Replace "Abolitionist" and "Anti-Slavery men" with "Environmentalists"; "Slavery" with "Deforestation"; and "Liberty" with "Conservation"---and one gets a modern description apropos for the Amazon:

The most miserable creatures that we know of are those who attempt to unite a love of *Deforestation and of Conservation*...Every day, we meet men who hate *Environmentalists* more than they love *Conservation*. They turn away from every step toward *conservation* with aversion. They are eager to believe falsehood against *Environmentalists*. They are reluctant to believe the truth. When any event occurs tending to deepen the public feeling in favor of *Conservation* and against *Deforestation*, they refuse to aid in publishing it. They eye it askance, with sneering jealousy. But the moment that means and opportunity are afforded to discredit such movement, they become zealous and active.

Please do not misinterpret us. We are not saying that Stowe or any of the other abolitionist writers were saints of verisimilitude. Thinking statistically and up against denial, we believe that they *deliberately* overstated salient aspects of the slave system in order to win the public over to abolition. Had their medium been paint, we would classify them as first modernists and invoke the wisdom of Georgia O'Keefe: "Nothing is less real than realism. It is only by selection, by eliminating, by emphasis that we get at the real meanings of things." [35]

To make our claim, we return to Fogel and Engerman,

That the interregional slave trade resulted in the destruction of *some* slave marriages is beyond dispute. What is at issue is the extent of the phenomenon. Data contained in sales records in New Orleans, by far the largest market in the interregional trade, sharply contradict the popular view that the destruction of slave marriages was at least a frequent, if not a universal, consequence of the slave trade. These records, which cover thousands of transactions during the years from 1804 to 1862, indicate that more than 84 percent of all sales over the age of fourteen involved unmarried individuals...it is likely that 13%, or less, of interregional sales resulted in the destruction of marriages. And since sales were only 16 percent of the total interregional movement, it is probable that about 2 percent of the marriages of slaves involved in the westward trek were destroyed by the process of migration (1974a 49).

Had Stowe written a truly verisimilar portrait of family separations, perhaps no family would have ever been split up in UTC; there are less than 50 Afro-Americans in the text and at an historic rate of 2%, a verisimilar portrayal would have no families separated. For the average slave, the auction block was an abstraction---a Sword of Damocles by which the master exacted obedience. Although Stowe does portray the mental cruelty of that threat, she cannot resist the melodrama of the real block. Stowe compensates for the cognitive dissonance in her audience by increasing the probability of separation of families. She knew that the auction block was emblematic of the horror of the system. In *A Key*, she writes

The worst abuse of the system of slavery is its outrage upon the family; and, as the writer views the subject, it is one which is more notorious and undeniable than any other. Yet it is upon this point that most stringent and earnest denial has been made to the representations of 'Uncle Tom's Cabin'... (257).

The lesson we deduce is this: whenever an infrequent event insidiously fortifies the system (subservience of slave mothers through fear of separation) and symbolizes the horror (the auction block), then the frequency of its representation should *not* be verisimilar. However, like arsenic for the nineteenth century syphilitic, hyperbole only helps in small doses. The political artist has

some, *but not much*, license to sacrifice verisimilitude in order to motivate audiences to embrace limits. We take this advice directly from Stowe. In her extensive quotation of the editor of the *Pennsylvania Freeman*, who wrote on Christmas day 1846,

The man who drove our carriage from Petersburg had two sons who belonged to the estate---small boys. He obtained a promise that they should not be sold. He was asked if they were his only children; he answered, ‘All that’s left of eight.’ Three others had been sold to the South, and he would never see or hear from them again. *As Northern people do not see such things, they should hear of them often enough to keep them awake to the sufferings of the victims of their indifference*” (267 italics ours).

Finally, we must comment on Stowe’s other prominent exercise of artistic license: the skin color of her characters. Fogel and Engerman analyzed the 1850 census and found that the proportion of mulattoes was only 7.7 per cent; in UTC, they are roughly half of the main characters. We speculate that Stowe makes the victims of the system almost white to heighten the empathy of white readers, in both the North and South. For example, in Chapter Thirty, the lecherous Simon Legree purchases the nubile Emmeline “body and soul” on the auction block. She is a beautiful “quadroon” which is the same racial mix of Eliza from Chapter Two: “These natural graces in the quadroon are often united with beauty of the most dazzling kind and in almost every case with a personal appearance prepossessing and agreeable” (12). Having reflected deeply on UTC and the voluminous Stowe biographies, we believe that the sacrifice of verisimilitude lay not so much in any latent racism on the part of the author as in a calculated strategy to exploit the deep-seated racism of her audience *in the North* [36] (Figure 3.2.).



To part children from their mothers was a common custom.

Figure 3.2. Lithograph and caption from Chapter XXX of the first edition of *Uncle Tom's Cabin*, entitled "The Slave Warehouse." In the text, Emmeline, a beautiful young "quadroon" is separated from her mother and sold "body and soul" to Simon Legree, earlier depicted as seedy and foul. The fact that the lithograph is not true to scene (showing a black boy being separated from his mother), lends support to the hypothesis that the slave block had become emblematic of the horror of the system. The editor felt no need to correspond the details of the lithograph to those of the text.

Among racists, fair-skinned slaves would elicit more empathy than would the dark-skinned. As we will see when analyzing the works of art on Amazonian deforestation, such license also has its role in the ecocritical approach.

Effecting limits through applying a *Key to the Deforestation Genre*

Stowe wrote UTC convincingly and *A Key to Uncle Tom's Cabin* is *prima facie* evidence that she thought that the proof of its verisimilitude rested with her. In hindsight and with the aid of cliometrics, we can say that essential aspects of the UTC are not verisimilar, viz., the frequencies of family separations and the skin color of the characters. However, to say that UTC is not

verisimilar on some counts, is not to say it is not verisimilar on others, nor is it to say that Stowe wantonly deceived. Verisimilitude is a continuum on which any work of political art can be located. [37]

Students of philosophy will see the scientific method in the ecocritical approach. The relativity of truth was formalized by Karl Popper in a comprehensive definition of verisimilitude: “that we combine here the ideas of truth and of content into one---the idea of a degree of better (or worse) correspondence to truth or of greater (or less) likeness or similarity of truth; or to use a term already mentioned above (in contradistinction to probability) the idea of (degrees of) *verisimilitude*.” [38]

- (1) t_2 makes more precise assertions than t_1 , and these more precise assertions stand up to more precise tests.
- (2) t_2 takes account of, and explains, more facts than t_1 (which will include for example the above case that, other things being equal t_2 's assertions are more precise).
- (3) t_2 describes, or explains, the facts in more detail than t_1 .
- (4) t_2 has passed tests which t_1 has failed to pass.
- (5) t_2 has suggested new experimental tests, not considered before t_2 was designed (and not suggested by t_1 , and perhaps not even applicable to t_1); and t_2 has passed these tests.
- (6) t_2 has unified or connected various hitherto unrelated problems. [39]

Criteria (1)-(6) have direct bearing on how the ecocritic should proceed in selecting works of art on Amazonian deforestation. Because the system is so complex, no work can capture all of its horrific aspects. One needs a package or ensemble of works which can be compared with alternative packages in which some of the components may coincide.

Adopting the Popperian criteria, the ecocritic proceeds in the following fashion: when considering two packages which equally satisfy the criteria of “interesting and morally acceptable,” then one chooses the package that is more verisimilar by criteria (1)-(6). Because no one can evaluate all conceivable packages at the same time and choose the global optimum, the

ecocritic merely tries to approximate it by testing packages which, to repeat Wilson one more time, can become “the vehicle[s] by which the writer [and/or director] transfers his own feelings directly into the minds of his readers in order to evoke the same emotional response [i.e., limits].”

In doing ecocriticism, the ecocritic recognizes the opportunity costs of the audience as well as the urgency of mass extinction. He or she does not have the luxury to aggregate more and more worthy works as the package would buckle under its own weight. Both the time and the patience of the audience are scarce resources. For example, in drafting this paragraph in the autumn of 2005, we learned of a recently launched book by David G. Campbell, aptly entitled *A Land of Ghosts: The Braided Lives of People and the Forest in Far Western Amazonia*. Judging from *The New York Times Book Review*, Campbell’s work *might* meet our criteria. [40] Do we incorporate it? No. Our time and patience are scarce too. Given an explosion of publications, we cannot deliberate over each and every new work as it comes on stream while the canopy of the Amazon shrinks by an area equivalent to medium-sized countries in Europe. Nevertheless, by Popper’s criteria, any future package that includes Campbell’s work can displace ours if it makes more precise assertions than ours, takes account of, and explains, more facts than ours, etc. So, the wide-ranging reader of *Amazonia in the Arts* is encouraged to propose a different package that uses as much or as little of the contents of this edition as is necessary to improve the promotion of limits. For that reason, we use the term “package” rather than “canon.” Packages invite criticism and can be unpacked and repacked relatively easily; canons are stodgy and demand respect.

In packaging works of art, the ecocritic will analyze the vignettes of each candidate work in isolation and then in conjunction with the other works chosen. How does the combination project the scientifically established causes and effects of deforestation? Some causes have such strong effects on the forests that their absence in any package would violate the Popperian criteria (2)-(3); others are so disputable that their absence may even enhance verisimilitude. Road construction is an example of a strong causation; any package *must* include it. Logging, on the

other hand, is more debatable. The absence of timber as a direct cause could actually lead to a more precise (criterion [1]) portrayal of Amazonian deforestation for many, but not all, parts of the Amazon. In order to say that road construction is a “must” and timber only a “may be”, one must draw on state-of-the-art science. For example, in the assertion just made, the ecocritic could point to *The Economics of Deforestation* to defend why the brief mention of logging in *The Old Man who Read Love Stories* is verisimilar:

The timber trade always had more of degradation than a deforestation impact, though in recent times logging operations have indirectly acted as access providers for subsequent squatter occupation in some regions. Infrastructure, in particular road construction, is the single most important deforestation factor: if there is good access, one can almost be sure that the forest will be substituted by any convenient alternative land use, depending on locally prevailing market incentives. [41]

The choice of texts in any package is complicated by the diversity of expert opinion regarding the causes and effect of deforestation. Sven Wunder, a senior economist with The Center for International Forestry Research (CIFOR), has identified three schools of thought by which the voluminous literature about Amazonian deforestation can be classified. [42] The schools answer six core questions about deforestation (Table 3.1) and sometimes, very differently (#4 and 5). Logically, any policy that flows from opposed answers will also be opposed. For example, Wunder writes “...conservation strategies based unilaterally on poverty alleviation in frontier settlements are likely to fail to provide forest protection; on the contrary, they may even exacerbate existing pull-deforestation.” [43] Suddenly, we see how precarious is the whole enterprise. Scientists are disputing not just the magnitude of variables but also the sign of those variables, viz, positive or negative. Ecocritics could let in much fresh air.

The Ecocritical School of thought to Amazonian deforestation answers distinctly the six core questions. Unlike the economic schools of thought, the ecocritical is unpretentious with respect to its explanatory power (#3, 4, and 5) and above all, unabashedly political (#1 and 6). The problem of Amazonian deforestation is a question of ethics and the vehicle for ethics is politics.

Because politics is inevitably charged, the ecocritic attempts to disarm the opposition through humor and good cheer, much as Stowe did in UTC. Whereas the other schools assume scientific literacy among the decision makers, the ecocritic assumes none. It also does not assume any familiarity with the works of art selected nor even any general awareness of the deforestation of the Amazon. Most counterintuitively, *the ecocritic does not even assume that the public is willing to be persuaded*. Instead, the strategy is to deploy works of art to lure the audience to where they would not necessarily choose to go, and once there, engage them in debate.

Economists from the other schools will accuse us, the ecocritics, of holding the public in low esteem. This is not true. It is the system that we hold in low esteem. We do not blame the public for their denial of the atrocities nor even for what Noam Chomsky has called “intentional ignorance” and the “studied lack of interest.” [44] In the words of Diana Taylor, another scholar of state-sponsored terrorism, it is the system that engineers a “percepticide” where spectators “deny what they [see] and, by turning away, collude with the violence around them.” [45] For the ecocritical school, percepticide is the main single factor responsible for deforestation. Therefore, conscience-raising on a massive and unprecedented scale is the most promising policy option. By assessing the verisimilitude of works of art on Amazonian deforestation according to the answers provided by the four schools of thought, the ecocritic analyzes and promotes those which will help the public embrace a limit of no deforestation which must be binding over generations.

A Key to the Deforestation Genre (Table 3.1) is the prism through which we will now examine complementary texts and films.

Table 3.1

Questions	‘Impoverishment’ School	‘Neoclassical’ School	‘Political Ecology’ School	‘Ecocritical School’
1. What main, single factor is responsible for deforestation?	‘The growing number of poor’	‘Open-access property rights’	‘Capitalist investors crowd out peasants’	Percepticide: ‘Denial of the multiple atrocities (e.g., genocide, forced prostitution,

				political assassinations, and ecocide’) and intrinsic worth of conservation’
2. Who is the principal deforestation agent?	‘Smallholders’	‘Various agents’	‘Capitalists entrepreneurs’	Proximate causation-road construction, resource exploitation, etc.; ultimate causation-those who choose ignorance or are inured by the atrocities and the heads-of-state who lack leadership.
3. What is driving the dynamics of deforestation?	‘A gradual push with deterministic, vicious circles’	‘Optimising agents react to pull incentives’	‘Capitalist pull, land expulsion and small-holder push’	Irrelevant question in the light of the exigency of limits.
4. What are the impacts of demographics and labour absorption?	‘Absorption is low; labour abundance boosts deforestation’	‘Labour mobility is high and labour supply very elastic’	‘General labour scarcity at frontier causes deforestation’	Beyond our lens of resolution and also irrelevant in light of the exigency of limits.
5. What are the effects of a rise in the peasant’s farm output prices?	‘Causes lower farm production and less deforestation’	‘Causes higher farm production and more deforestation’	‘Causes lower farm production and less deforestation’	A nefarious question given its tacit acceptance of a trade-off between the multiple atrocities and money.
6. What are the most promising policy options to effectively enhance [ameliorate] Deforestation?	‘Alleviate poverty, stimulate the rural economy, agricultural intensification, close resource gaps (food, energy), promote population policies	‘Establish private and secure property rights, eliminate policies providing distortive deforestation incentives, correct market	‘Strengthen community-based management, secure smallholder’s land rights, eliminate frontier expansion	Conscience-raising on a massive and unprecedented scale to inspire political support for binding limits on land use while also internalizing the externalities which could make

failures'

policies, reduce
Northern
consumption'

the limits palatable
in the short-run;
re-formulate
education in the
light of evolution
to make
preferences
sustainable in the
long-run.

Table 3.1.A Key to The Deforestation Genre (adapted from Sven Wunder, *The Economics of Deforestation*, p. 49).



Chapter Four

The Old Man who Read Love Stories

Luís Sepúlveda makes no bones about the didactic nature of *The Old Man who Read Love Stories*. The author dedicates the book to Chico Mendes "one of the most distinguished defenders of Amazonia and one of the most outstanding and principled figures in the worldwide Ecological Movement." Chico was assassinated in 1988 and the multiple atrocities he suffered may have inspired many of the vignettes of *The Old Man*. However, others seem timeless and some will even remind us of *Uncle Tom's Cabin* for reasons that are both stylistic and philosophical. Stylistically, both novels deploy an old man to put atrocities in high relief; philosophically, neither suggests what will be the answers to all the questions raised by an abrupt end of the system. Just as Stowe recognized that such questions were a smokescreen in the debate over emancipation, Sepúlveda does likewise in the debate over conservation, thereby making *The Old Man* exemplary of the Ecocritical School of Deforestation. The central message is that Amazonian deforestation is fundamentally unjust. One can say that conservation is for Sepúlveda what emancipation had been for Stowe, a considered judgment and non-negotiable.

Sepúlveda shows the reader that the assault on the Amazon diminishes everyone involved, especially its worst perpetrators. Colonists who slash and burn, government officials who extort bribes, gold prospectors who poison rivers, and the foreign tourists who hunt the wildlife, are all the unwitting victims of their own actions. The foreground of horror is juxtaposed against a

backdrop of beauty, captured in the bookjacket for the Spanish edition: against a glossy black background is a Rousseau-like collage of the non-

human cast. Any biophobia of the jungle quickly dissipates and morphs into a biophilia for the rainforest.

Analysis in Five Acts

Act One: *Mise-en-Scene*

The story begins on a river wharf in a remote Amazonian town called *El Idilio* where a dilapidated boat, named the *Sucre*, transports a dentist. “El Idilio” means “The Idyll” and *Sucre* was the liberator of Ecuador. By an adroit choice of names, the reader can easily surmise that irony will run the course of the book. To illustrate the isolation of the town, the narrator tells us that the dentist visits twice a year which is the same frequency as the mailman. The boat is a welcome sight as it carries provisions of salt, gas, beer, and rum. By the contents of the boat, one immediately understands the nature of the outside world to the town. The link is as much to create dependencies (e.g., the beer and rum) as it is to bring any necessity (e.g., the gas and salt). Sepúlveda does not waste any time describing how such modernity becomes internalized in the psyche of the local inhabitants: “There was a huge difference between a proud, haughty Shuar, who knew the secret regions of the Amazon, and a Jíbaro, like those gathered on the quay at El Idilio, hoping for a spare drop of liquor” (5). The scene illustrates the dynamic that drives deforestation as envisioned by the “Impoverishment School” (Question #3): “a gradual push with deterministic vicious circles.”

What do we first learn of the book’s protagonist, Antonio José Bolívar Proaño? First, that he is fit and of good humor as he jokes about his longevity. The dentist asks Antonio why he does not use his dentures. Antonio replies “I’ll pop them in right away. I wasn’t eating or talking, so what was the point of wearing them?” (8). Antonio puts them away because his nature is to conserve; surely, the dentures would outlive “the old man.” The reader deduces a fundamental lesson of sustainability: internalize conservation as a habit--use something only when it is needed. Precisely because the metaphor is reminiscent of the Marxist aphorism *to each according to his need*, this and other messages in *The Old Man* will be associated with political movements that

are leftist in nature. As a metaphor for what the North should be doing in behalf of the South, the philosophy of Antonio fits neatly into the mosaic of options to ameliorate deforestation provided by the Political Ecology School, viz., “reduce...consumption” (Question #6).

William Faulkner famously said that “[t]he past is never dead[,] [i]t’s not even past” [1] and Sepúlveda would seem to agree. He uses the tendency of an old man to reminisce to create a seamless commentary on past, present, and future. The first flashback is an episode with one of the dentist's patients. “They were gold prospectors of no fixed abode. People called them the wanderers, and they weren’t fussy whether they found gold in rivers or in other people’s saddlebags” (8-9). The prospector visits the dentist not because he needs a cavity filled or his teeth cleaned but because he has waged a bet that he can have all his teeth pulled without flinching; when the dentist objects, the prospector threatens the man’s life with a machete. The exchange is a stunning metaphor for the devastation of the Amazon: the pursuit of the ugly through violence and the absence of limits over human choice (Question #6 of the Ecocritical School). The scene captures the coercion that accompanies capitalist entrepreneurs who, according to the Political Ecology School, constitute the principal deforestation agent (Question #2).

An overarching message emerges from the opening scenes: the lives of those who do such violence, viz., the miners, etc., are undesirable compared to those of their primary victims, viz., the indigenous peoples. To the extent that the indigenous way of life reflects a markedly better alternative even evident in one’s teeth, we can infer the need for conscience-raising on a massive and unprecedented scale (Question #6 of the Ecocritical School).

Act Two: *Mixing Metaphors*

The relationship of the characters with the Amazon provides a wealth of metaphors. The narrator makes the sweeping statement that “both the settlers and the gold prospectors made all kinds of stupid mistakes in the jungle” (49). The stupidities include obvious things like felling trees on

riverbanks thereby causing sedimentation or hunting peccaries in heat, thereby turning them into miniature monsters. Special contempt is reserved for the foreign tourists who: "...unleashed themselves on the ocelots, cubs and pregnant females alike, and then, before clearing off, they photographed each other beside dozens of skins staked on poles" (49). From the perspective of the Neoclassical School, the killing of the young is the logical outcome of open access (Question #1) and the discounting of future benefits through optimization (Question #3). As explained in Chapter Three, ever since Colin Clark's seminal paper, mainstream economists have recognized that such discounting will condemn some species to extinction. Nevertheless, they are not particularly bothered by such an implication! In contrast, *The Old Man* does not suggest that such behavior is the outcome of any rational choice; instead it is presented as an atrocity in conformity with the answer to Question #1 by the Ecocritical School.

Considering Antonio in the abstract, ecocritics would claim that his persona is one huge metaphor for the whole Ecocritical School. For example, Antonio can read but cannot write. Reading is a passive activity that has a very low environmental impact (especially when the books are borrowed), whereas writing implies varying degrees of action and power. Antonio's greatest joy is reading love stories. It is easy for the reader to deduce that the Amazon is also a love story whose beauty is to be had simply in its *reading*. "However much he tried to revive his old feeling of hatred, he couldn't help loving that world, and the hatred faded as he was seduced by those vast expanses without frontier or owner" (34).

Where do aesthetics figure into the established economic schools of the Key to Amazonian Deforestation (Table 3.1)? An economist might reply that the joy of knowing that the Amazon will exist is a "public good" where "public good" means something that can be simultaneously consumed by many without any reduction in its supply (see "existence values" under "non-use values" of Figure 3.1). People from around the world are enjoying the Amazon without ever having to pay anything for that enjoyment. One may also recall from the previous chapter that such "free-riding" results in a suboptimal allocation of the public good, in this case, forest conservation. Although the reader savvy in economic theory may infer free-riding, it's a stretch.

What strikes the average reader of *The Old Man* are the multiple atrocities that are *allowed* to happen. Because ethics and aesthetics do not fit easily into the existing economic schools, percepticide and lack of leadership regarding the atrocities of deforestation become the departure point for the proposed Ecocritical School (Questions #1 and #2).

Like the dramatic recollection of the dentist and the gold prospector, other flashbacks lend themselves well to the Key of Table 3.1. Outstanding among them is the reason Antonio migrated to the Amazon: "The government was promising large tracts of land and technical help in exchange for settling the territories disputed with Peru " (30). We see that it is not poverty pushing Antonio from the Sierra into the Amazon basin but the lure of a better material life pulling him. This corresponds to the explanation common to both the Neoclassical and Political Ecology Schools (Question #3) and, in the case of Ecuador, is confirmed by the empirical findings of Tom Rudel. [2] However, ecocritics will have a different take on prosperity and poverty than will mainstream economists. Well-being is also a social construct and many of its attributes defy monetization. For example, Antonio's wife, Dolores Encarnación del Santísimo Sacramento Estupiñan Otavalo, is barren in a culture where one's wealth and masculinity are measured by the number of children. Antonio holds out the hope that she, he, or possibly both of them will become fertile in the new climate. "Perhaps a change of climate might put right the abnormality that was affecting one of them" (30). Inasmuch as Antonio never mentions again his lack of children, even as an old man when grand children are most appreciated and their presence most sorely missed, one infers that the Amazon has provided Antonio with a refuge from the cultural oppression of procreation. That he does not regret not having procreated integrates well with the Impoverishment School which maintains that "promot[ing] population policy" is the most promising policy option to alleviate deforestation (Question #6).

One may want to say that fate has been unkind to Antonio and Dolores Encarnación del Santísimo Sacramento Estupiñan Otavalo (no shortened name is ever used in her reference, no doubt to convey Antonio's lifelong devotion). But fate has nothing to do with their misfortunes. Sepúlveda explains the simple causes for their failures. Most of the reasons owe to the fact that

the agricultural knowledge of the temperate Sierra (2000m and higher altitudes) is maladapted to the Amazon (600m and lower). There is a large body of scientific literature in agronomy that would support the verisimilitude of such a portrayal. [3] In reality, many colonists do die in the Amazon and Dolores Encarnación del Santísimo Sacramento Estupiñan Otavalo is one of them. She succumbs to malaria. Antonio directs the blame for his repeated misfortunes toward the place as if it were the ultimate cause. "He pictured a huge blaze that would turn the entire Amazon into a raging fire" (43). We are once again off the chart of the established economic schools of deforestation. Fury and vengeance defy classification even though both can trigger a great deal of deforestation. Although such "projectible patterns" of non-rational behavior do exist in economic theory (e.g., Daniel Kahneman won the Nobel Memorial Prize in Economics in 2002 for his application of psychology), they have not yet been integrated into the existing schools of deforestation. [4] That Sepúlveda weaves non-rational behaviors into the multiple variables portrayed in the deforestation system strengthens the case for the Ecocritical School which emphasizes conscience-raising as the best solution (Question #6). It also suggests a theory of resource allocation alternative to economics: non-equilibrium thermodynamics. [5] Bifurcations points (an arsonist) can have amplification effects (raging fires) that lie beyond our lens of resolution (how does one profile a once-in-a-lifetime arsonist?)

Antonio's fantasies go unrealized and his anger subsides as he adapts to the Amazon by transculturation. This is pure irony and pure Political Ecology---the only way to survive is community-based management (Question #6); in this case, learning from the indigenous Shuar culture. Such assimilation not only defies government policies that go back to colonial times, but also makes mockery of such attempts. With reference to the Shuar, the narrator relates "They taught them to hunt, fish, build solid huts that would withstand the rains, and distinguish between edible and poisonous fruit. Above all, they taught them how to live in harmony with the jungle" (33).

The vignettes about Antonio's reverse assimilation show that cost-effective alternatives exist to deforestation. To catch parrots, Antonio ferments papayas with ayahuasca (*Banisteriopsis caapi*)

and lures parrots to the punch to get them drunk. "He caged a pair of blue-and-gold macaws and another of shapul parakeets, prized as good talkers, and left the rest, wishing them a happy awakening. He knew their drunken stupor would last about two days" (58). Also in accord with custom, Antonio also does not harvest all the birds. Such restraint is consistent with sound wildlife management (Political Ecology School, Question #6) and inconsistent with optimizing agents who exploit open access resources and heavily discount future benefits (Neoclassical School, Questions #1 and 3). However, the humanity in the way that Antonio hunts goes beyond Political Ecology and integrates with the answer offered by the Ecocritical School to Question #6. One senses that Antonio believes that every species has a right to continue its evolution.

Many examples of biophilia lie in apparently trivial details of Antonio's lifestyle. His preference for monkey meat deserves special mention. It is a well known fact that the transformation of the Amazon for cattle-grazing is the single worst proximate cause of deforestation. Wunder puts cattle-grazing in historic context:

The continent's colonial heritage encouraged extraction strategies possessing four distinct characteristics:

- ecologically uniformed land-use technologies
- new consumption patterns causing ecological degradation
- short time-horizons in resource exploitation
- the continuous generation of open access to virgin agropastoral land.

Cattle, the prime deforesting sector in Latin America, potentially unites all these four notions: the introduction of an exotic, heavy-hoofed species to fragile lands, frequent meat consumption as a land-consuming 'Westernized habit,' the objective of rapid investment returns in a commercial system, and the adoption of land-extensive pastoral systems. [6]

By calling into question consumer preferences, *The Old Man* departs radically from the Neoclassical School which is founded on the premise that "individuals' preferences are to count" [7] and should *not* be a control variable. For the Ecocritical School, preferences should be a

control variable and unsustainable preferences (acquired “Westernized habit[s]”) should *not* count (Question #6).

Within a scant five years of having settled in the Amazon, Antonio knows he will never return to the highlands. When a Shuar asks him how do the people of the highlands eat if they do not hunt, his reply “They work. From sunrise to sunset. What fools! What fools! Pronounced the Shuar” (35). In the reply of the Shuar, one sees a poignant commentary. The Amazon is not something to be worked but something to live with, in harmony, enjoying its bounty within its limits. To do the contrary, as Antonio learned the hard way, brings misery and death; living with the land brings peace and well-being. As we shall see, the theme of accepting the Amazon on its terms traverses every single work of art selected in our ecocritical package.

Recalling that Sepúlveda wrote *The Old Man* to help end deforestation, one can interpret Antonio as a role model for the engaged individual. To borrow another famous phrase from Faulkner, Antonio does not merely endure life’s hardships, he prevails. Stowe did something analogous in *Uncle Tom’s Cabin* (UTC) and it is worthwhile to flesh out the analogy in some detail. The counterpart to Antonio is Miss Ophelia who hails from Vermont. She witnesses slavery for the first time during a prolonged visit to the New Orleans home of her cousin, Augustine St. Clare. Her revulsion does not translate into action or even a deep comprehension of the slave system. Mischievously, St. Clare gives Miss Ophelia a “heathenish” girl named Topsy, so that she may “give her a good orthodox New England bringing up”(267). Miss Ophelia’s accepts the challenge and, in the ensuing trials and tribulations of educating Topsy, recognizes her own deep-seated prejudices. She requests that St. Clare formally draw up a deed of ownership to prevent Topsy from being sold should St. Clare accidentally die. Her caution proves prescient and no sooner does Miss Ophelia become an accidental slaveholder than is St. Clare stabbed to death while breaking up a barroom brawl. Tom, his trusted slave to whom he had promised freedom, is auctioned in the liquidation of the estate. The new owner, Simon Legree, orders the other slaves to whip Tom to death for Tom’s insolence in refusing to whip a fellow slave. Through the reasoned and deliberate actions of Miss Ophelia, Stowe makes clear

that Topsy was spared a similar fate. By the end of the book, Topsy has become an upstanding woman of faith who lives free in Vermont.

Comparing *The Old Man* and UTC, one can say that Antonio and Miss Ophelia serve the same role: the seemingly powerless can psychologically and philosophically grow and confront the horror of the system in which they are immersed. With enough Miss Ophelias or Antonios, there would never have been slavery in the U.S. or deforestation in the Amazon. In terms of the Key of Table 3.1, the focus on the power of the individual, aggregated across thousands and millions, is inherent in the answers to Question #6 for both the Political Ecology and the Ecocritical Schools.

Returning to the storyline of *The Old Man*, the narrator tells the reader that Antonio never remarries and the reason why should by now be obvious to the reader: any prospective wife would either have to be another assimilated colonist (rare or non-existent) or a Shuar woman. The latter is not an option because Shuar women do not marry non-Shuar men. Antonio respects Shuar culture and is not sexually frustrated. He sees nothing salacious in accepting the gift by a husband of the sexual favors of one his wives:

It was pure love with no other end than love itself. Without possession and without jealousy. Nobody can tie down a thunderbolt and nobody can take for his own the rapture of the other at the moment of abandon. So his friend Nushiño once explained to him (42).

Acceptance of differences in matters of love can be viewed as a metaphor for acceptance of the environment in its natural state. The metaphor is recurrent in *The Old Man* and is expressed explicitly when Antonio has difficulty picturing Venice, the backdrop of one of his love stories.

The drowsy afternoon enveloped him, lost in such thoughts, and he stretched out on his hammock, smiling wryly as he imagined people opening their front doors, stepping outside, and falling straight into the river (74).

By analogy, the reader will be faced with his or her own poverty of imagination and misinterpretations regarding the Amazon, its native inhabitants, and the once sustainable system

that predated the conquest. Like the controversial economics of deforestation, matters of culture often lie beyond our lens of resolution (Question #4). Without hailing from the Amazon, one can never fully imagine it, and may be misled by misconceptions “to write upon it.” The central message of the metaphor of the love stories is that one should take delight in the possibilities of one’s imagination and, recognizing its limitations, be respectful of the right to existence of another reality. Such emphasis on the enjoyment derived from acceptance of diversity goes beyond the established schools of thought and helps define what is the Ecocritical School.

Act III: *Catharsis*

The wonder of the Amazon and its sustainable uses are illustrated in the vignette of the snakebite. A snake known commonly as the X bites Antonio. It is poisonous and Nushiño nurses him back to health with various medicinal plants. These medicines are the result of thousands of years of coexistence with the rainforest and experimentation with its biodiversity; it is one of many utilitarian reasons that the cultures of the Amazon should be protected from the system of deforestation.

The near-death experience proves cathartic and illuminates the intrinsic value of the Shuar way of life. To celebrate life, Antonio drinks an infusion of the hallucinogenic *natema* (the Shuar term for the species *Banisteriopsis caapi*---the same concoction that he had earlier used to lure the parrots). His senses are sharpened and

...thinking and feeling like a Shuar; then, wearing the garb of a skilled hunter, he was following the tracks of a mysterious animal, without shape or substance, smell or sound, but endowed with two bright yellow eyes. (38)

Biophobia morphs into biophilia as Antonio learns how to hypnotize snakes by confusing them with certain movements and sounds, grabbing them below the head to milk the poison from their fangs. “Every six months an agent turned up from a laboratory where they prepared antisnake

serum, to buy the lethal vials” (40). This vignette of biophobia-cum-biophilia is highly verisimilar to what E.O. Wilson tells us about our evolutionary psychology:

1. Poisonous snakes cause sickness and death in primates and other mammals throughout the world.
2. Old World monkeys and apes generally combine a strong natural fear of snakes with fascination for these animals and the use of vocal communication, the latter including specialized sounds in a few species, all drawing attention of the group to the presence of snakes in the near vicinity...
3. Human beings are genetically averse to snakes. They are quick to develop fear and even full-blown phobias with very little negative reinforcement...
4. In a manner true to their status as Old World primates, human beings too are fascinated by snakes...They employ snakes profusely as metaphors and weave them into stories, myth, and religious symbolism...Often semi-human in form, they are poised to inflict vengeful death but also to bestow knowledge and power.
5. People in diverse cultures dream more about serpents than any other kind of animal, conjuring as they do so a rich medley of dread and magical power...In what seems to be a logical consequence, serpents are also prominent agents in mythology and religion in a majority of cultures. [8]

The reader who infers a crude sociobiology from points (1) to (5) would be mistaken. Evolutionists are only hypothesizing that people the world over have common mental predispositions, like ophidiophobia, that translate into discernible cultural patterns. If such shared potential is empirically borne out, the findings will be both welcome and unwelcome news for advocates of community-based management (Question #6 Political Ecology School). Welcome to the extent that significant assimilation is possible. Unwelcome to the extent that full assimilation is not. In evolutionary time, anything less than full assimilation of sustainable practices implies mass extinction.

Life in the jungle tempered every inch of his body. He acquired feline muscles that hardened with the passage of time. He knew the jungle as well as a Shuar. He could

track as well as a Shuar. He swam as well as a Shuar. In short, he was like them, and yet was not one of them. That was why he had to go away from time to time; as they explained to him, it was good for him not to be one of them. They wanted to see him, have him with them, but also wanted to feel his absence, the sadness of being unable to talk to him, and the joy in their hearts when they saw him again (40-41).

The impossibility of a complete reverse assimilation is illustrated when Antonio avenges the murder of Nushiño by a gold prospector. Antonio tracks down the man and shoots him in cold blood. By not having killed him with a poison dart, Antonio has foreclosed the possibility for the Shuar to capture the man's dying expression through the shrinking of his head. According to custom, only that shrunken head could have freed Nushiño's spirit. The community is heartbroken that Nushiño's spirit will bump around in the jungle like a blind parrot and, for that transgression, shuns Antonio. "He was like them, and yet was not one of them" is the refrain repeated in the text and serves as a powerful metaphor for land use. The sustainability of the Amazon cannot be achieved simply by acquiring and applying a subset of indigenous techniques of land management that worked for millennia. Something critical will always be missing and it is hubris to think that science will know enough about indigenous land management to simulate the sustainability that indigenous people once achieved. Antonio's gracious acquiescence to a state of exile is a powerful metaphor that Western peoples should accept limits (Question #6 Ecocritical School).

Act IV: The Juxtaposition of Characters as a Metaphor for Land Use

Accompanied by the obsequious mayor who is always seeking personal advantage, American tourists barge into Antonio's home. One of the Americans takes a fancy to the portrait of Dolores Encarnación del Santísimo Sacramento Estupiñan Otavalo. In a caricature of capitalism, the Americans assume that everything has a price. The tourist plops down a fistful of money as payment for the portrait. This is pure Political Ecology: capitalist investors are crowding out peasants (Question #1). It can also be interpreted as a not-so-subtle metaphor for the attempt of

economists to assign value to that which is intrinsically incommensurable. [9] The nefarious nature of such imposed tradeoffs is another striking difference between the Ecocritical and the other schools of deforestation (e.g., Question #4 and #5). Antonio reacts viscerally and grabs his gun. Sheepishly, the tourist puts back the portrait and the mayor worries that Antonio's ire will have cost him business. In retaliation, the mayor threatens to confiscate Antonio's home. Although Antonio believes he has clear title, he may indeed not have it, as the shack lies near the riverbank. Invoking the law, the infuriated mayor threatens "All the land next to the river, from the shore to a hundred yards inland, belongs to the state. And in case you've forgotten, I'm the state around here" (79).

A few days later, the mayor returns. He now needs Antonio to find the tourists who have gone missing in the jungle. Everyone suspects that they are the victims of the same female ocelot who earlier killed the other gringo who had skinned her cubs. Antonio is coerced to join the hunting party by the threat that he will lose his home (a loss reminiscent of *Uncle Tom's Cabin*). Although the role of corruption can be understood by the Neoclassical School as "optimizing agents react[ing] to pull incentives" (Question #3), the pervasiveness of corruption is usually papered over by mainstream economists who advocate "private and secure property" (Question #6). Indeed, the neoclassical model cannot really distinguish between resources allocated by choice from those allocated through coercion. Whereas the gringos are there to appropriate Antonio's possessions through a forced sale (viz., the fistful of money for the beloved photo of his departed wife), the State is there to exploit his labor through blackmail (viz., condemning his house). By linking the failure of both the private and public sectors to the absence of ethics, *The Old Man* coheres to the Ecocritical School (Question #6) that finds the best solution is conscience-raising on a vast and almost unimaginable scale.

Act V: The Denouement

The pace of the story accelerates as Antonio deploys indigenous knowledge to trace the path of the gringos. There is both irony and realism in the fact that a troop of monkeys killed the gringos because of their attachment to the material:

Just imagine the gringos, with their cameras, watches, silver chains, belt buckles, knives, were a shining incitement to the monkey's curiosity...if you have the slightest thing to attract a monkey's attention and one swings down from the trees to get it, you'd better hand it over, whatever it is. Because if you resist, the monkey will start screaming and in a few seconds hundreds, thousands of the furry little devils will swoop furiously down on you (82-83).

Other organisms of the jungle devour the human prey clean to the bone, even making use of the hair in an anthill. Taking in the scene, Antonio spots one of the culprits, a monkey with a camera around his neck.

The murder scene is a fantastic metaphor of holism; the entire jungle defends its top predator--- the ocelot. As a metaphor, the indivisibility of the whole goes to the heart of what is wrong with the Neoclassical School. Mainstream economists look at the problem of deforestation as one of determining how much to fell as if forests were a homogenous stock with ubiquitous biodiversity. From biogeography, one knows that minimum habitats areas are tremendously large expanses and when one reduces the forest cover, one is reducing a much larger whole through the subsequent effects of inbreeding and edge effects. [10]

The crescendo of the hunt is rich in ecological detail. For example, the light of the mayor's lantern frightens the bats triggering the physiological response of defecation. Everyone must clean himself quickly to avoid an onslaught of mosquitoes and ants, attracted by the feces. Antonio deploys such Shuar knowledge to guide the party day and night. The respect for the existence of the Amazon by its long-term inhabitants is in sharp contrast to the transplanted mayor who kills indiscriminately.

They followed a clear trail of blood that increased the mayor's euphoria, and came upon an animal with a long nose quivering in its death throes. The handsome mottled yellow coat was covered with mud and blood (98-99).

Antonio reprimands the mayor "Why don't you look before you fire your damned toy? It's bad luck to kill an anteater. Even fools know that. It's the most harmless animal in the whole jungle" (99). When the party finally discovers the bodies of the gringos, they all decide that it is best for Antonio to track down the ocelot by himself.

The denouement is in full play. Antonio and the female ocelot are two trajectories put on a collision course by forces outside their own control: (1) the ocelot crazed by the brutality of the gringos who have killed its young and (2) Antonio by the brutality of a system that makes him kill what is also an innocent victim. However, the scene is unexpected. The ocelot senses Antonio's humanity and lures him to her mate who is writhing in pain having been shot by one of the tourists. After Antonio performs euthanasia on the male ocelot, the female then turns on Antonio (one daresay she follows the Neoclassical nostrum of "sunk costs"). The fact that Antonio survives and not the female ocelot, is didactic. One sees the message by considering the alternative---any victory of the ocelot would imply that the forest will prevail. By having Antonio survive, stewardship comes to the fore.

The old man stroked her, ignoring the pain in his injured foot, and wept tears of shame, feeling unworthy, degraded, not at all the victor after the battle...Then, in a fit of rage, he threw in the gun and watched it sink without glory. A metal monster despised by all living creatures (130-131).

Antonio curses "...the gringo responsible for the tragedy, the mayor, the gold prospectors, all those who whored on his virgin Amazonia..." Taking refuge in his shack, he also takes refuge in his books of love which "sometimes made him forget the barbarity of man" (131).

Integrating the tale with the Artist

In Chapter Two we posited that one of the functions of the ecocritic is to integrate the tale with the artist who created it. We are amazed by Sepúlveda's clinical eye: many of the causes of Amazonian deforestation in *The Old Man* correspond exactly to what scientists have concluded from careful measurement and statistical analysis in the years since *The Old Man* was published. The convergence reminds us of the distinction that Wilson draws between science and the arts: "science is coarse-grained and encompassing, as opposed to the arts, which are fine-grained and interstitial. That is, *science aims to create principles...* the arts use fine details to flesh out and make strikingly clear by implication those same qualities." [11]

In a magazine interview, Sepúlveda makes plain that the verisimilitude of *The Old Man* was no accident "From the outset, I want to avoid inserting myself into what I wrote. I am a chronicler of what the protagonists of the environment were telling me...I wanted to maintain that fidelity..." (translation ours). [12] Like Stowe, he gave voice to the oppressed:

...I wanted to write something that was a metaphor for the possibility of living in an environment different from one's own, that harmony is possible in a culture that is not one's own, and that this possibility only obtains when a deep respect exists for the Other....The main character is a man who lives in exile [and] migrated for a variety of motives. He faces life's challenges without trauma, transforming the experience into one huge metaphor of life and beauty (translation ours) [13]

The analogy with Stowe is reason for hope. Perhaps some day soon, Sepúlveda will also witness the end of a system.



Chapter Five

The Burning Season

The Burning Season (TBS) defies any quick and easy classification. The author, Andrew Revkin, is an environmental journalist who has done much more than simply report the facts. An horrific system is portrayed by an author who holds the unflinching conviction that journalism can help end the system. Reminiscent of cynics who bemoaned UTC as one long sermon, TBS can be derided as one long editorial. Through the lens of ecocriticism, such an assessment is neither unfair nor even insulting. Recall from Chapter One that ecocriticism selects works of art that “motiv[ate] audiences to live within limits that will be binding over generations.” Revkin’s motivations are apparent beginning with the bookjacket which is an aerial shot of a thick column of smoke rising into the troposphere. Ominously, the smoke takes the cylindrical shape of a containment building for a nuclear power plant. In the thick of all that smoke and high above the trees is the subtitle: “The Murder of Chico Mendes and the Fight for the Amazon Rainforest.” The ending of the book is also, pardon the pun, over the top. Revkin closes with “A Resource Guide” and the caption “The Voice of Brazil’s vanishing Indian culture.” A blank space follows (315). Clearly, the style of TBS and the commitment of its author go far beyond “environmental journalism” and can be better classified in what Robert S. Boynton has called “the new new journalism.” [1]

A work selected from the new new journalism assumes an indispensable role in any ecocritical package. It permits the reader to gauge the verisimilitude of the complementary fictional works and achieve the second of Scodel's three demands of any narrative: "that it be credible." For this reason, the bar for accuracy in choosing a work of journalism must be set higher than the bar for verisimilitude in a work of fiction. Any error undermines not just the journalistic work but, quite directly, the fictional works of the ecocritical package. Because the cost of checking facts is significant, readers often rely on the reputation of the news organization with which the journalist is associated. Hence, Revkin's affiliation with *The New York Times* lends credibility as do the awards he has won for the book.

Unfortunately, a journalist can be lulled into thinking that no reader will ever check any of the facts. He or she will be stung when some reader does indeed check the facts and even delight in, as the Australians say, "cutting down the tall poppies." The perfect storm arises when such a reader has a penchant for blogging. The identified flaw can be pulsated into cyberspace and take on a life of its own. Americans will recall how a *blogger* brought down the TV anchorman Dan Rather during the presidential elections of 2004. Accomplished journalists like Revkin should be especially careful when writing about complex environmental issues that lend themselves to facile and fallacious interpretations. [2]

A simple example can illustrate our point. There are many Brazilians and Americans such as ourselves who are bilingual in English and Portuguese and can gauge the accuracy of some aspects of TBS at zero cost. We have found a very serious flaw on page 104: "So the Brazilian junta, following established military doctrine, implemented its strategy of *ocupar para não entregar*, occupy so as not to surrender." The Portuguese slogan was not *ocupar para não entregar* but *integrar para não entregar*. "Ocupar" and "integrar" have distinct meanings and connotations in the context of the military dictatorship. "Occupy" connotes seizure whereas "integrate" means to make whole or complete. Revkin should have translated the slogan as "Bring the Amazon into Brazil, so as not to surrender it." Translated correctly, the slogan loses its sting. Apologists for the so-called development of the Amazon might seize on the mistake to

discredit Revkin and, by extrapolation, his thesis. Therefore, it is up to us, the ecocritics, to take the wind out of their sails. Robert Louis Stevenson may have said it best “The truth that is suppressed by friends is the readiest weapon of the enemy.” [3] Fortunately, in the Brazilian edition *Tempo de Queimada Tempo de Morte*, the translator also spotted the error and corrected “*ocupar para não entregar*” to “*integrar para não entregar.*” [4]

Why does Revkin pepper the narrative with so much Portuguese? Those squiggly signs over the vowels are strange to non-Portuguese readers and, we suspect, off-putting. We speculate that Revkin adopted Brazilianisms to authenticate his five years of investigative work while giving the narrative a certain *panache*. As we have seen in “*ocupar para não entregar*,” that strategy is fraught with risks. In TBS, we have *seringal* rather than rubber plantation, *seringueiro*, rather than rubber tapper and *seringalista*, rather than plantation owner. Will the monoglot English-speaker be able to remember the distinct meanings of the similarly spelt *seringal*, *seringueiro* and *seringalista*? And how exactly does one keep track of those exotic words when one does not even know how to pronounce them?

The storyline

Most people who pick up TBS will already have some idea of what happened to Chico. Likewise, there is no suspense regarding who killed him. Unlike the detective novels *The Old Man who Read Love Stories* or *Máira* (which we take up in the next chapter), one could say that TBS is an *anti-detective* non-novel. In the first chapter, we learn not only of the identity of the murderer but even that Chico knew he would be killed:

Thus it was that in the latter half of December, the threats against Mendes had been replaced with death pronouncements. ‘Threat’ implies that death is only a possibility; in Mendes’ case, imminent death was a near inevitability (10).

The mystery lies in the dynamics of the system that put Chico on a trajectory which would end in his death. To captivate the audience, Revkin elaborates that trajectory using techniques more

typical of cinema than of journalism. He establishes immediately the global significance of Chico and ends the first chapter with a cameo appearance of the important people in Chico's life. The setting is melodramatic: a rainy funeral procession three days before Christmas 1988. The remaining thirteen chapters constitute a cinematic flashback where the characters are fully developed. In the closing lines of the book, Revkin pans the planet as the story comes full circle:

That night, Allegretti was far away, attending the opera in New York City, where she was visiting her brother. Adrian Cowell was in London, working feverishly on his film. Stephan Schwartzman was at home in Washington, putting his five-month-old son to bed. And in Rio Branco, Bishop Grechi was walking to the radio station to broadcast the Christmas novena; three hundred groups of worshipers were gathered by the tinny radios on the seringais around Acre. Just before he reached the building, a church worker ran up and said that Rodrigues had phoned from Xapuri in tears. Controlling his emotions, Grechi entered the station. After making a quick call to confirm the awful news, he spoke into the microphone. As his steady voice echoed throughout the rain forest, hundreds of rubber tappers began to pray for Chico Mendes (277).

The contrasts are meant to overwhelm the reader's emotion (a lump-in-the-throat reaction), not just for the loss of a life, but for the sheer injustice of it all. By the definition of ecocriticism, one can measure Revkin's ecocritical success by the solidarity felt between Chico-the-rubber-tapper and the reader.

The intended audience is the U.S. and that intention cannot be divorced from the narrative strategy. Revkin puts the role of Chico Mendes into the context of American social history "He was to the ranchers of the Amazon what César Chávez was to the citrus kings of California..." (8) Although some non-US analogies occasionally crop up in TBS, the critical mass is American: "[The Amazon] differed little from the American West of the nineteenth century as described in 1872 by Mark Twain in *Roughing It*: 'the very paradise of outlaws and desperadoes'" (10). With respect to geography, every single description has compelled Revkin to find a U.S. equivalent: "Besides flooding a chunk of forest the size of Rhode Island, the reservoir displaced several

Indian tribes and six villages” (115); “Pedro Aparecido Dotto... [acquired]...a tract of 9,370 square miles, an area slightly larger than New Hampshire” (136). Not only is the Brazilian system of deforestation analogized to U.S. history and geography, sometimes even quintessentially cultural aspects are fair game. The Brazilian musical genre *forró* is presented in terms of an American counterpart: “The music was simple and happy. It had the beat of Louisiana Cajun and was played with the same instrumentation: fiddle, triangle, and accordion” (296).

The multiple dimensions of analogies make them tricky. Even when appropriate in one dimension, the same analogy can be refused in another. For example, Revkin’s claim that the Amazon differed little from the American West does not apply to the respective patterns of settlement. Expansion into the American West was tidal and driven, in no small part, by Manifest Destiny. In contrast, Amazonian colonization “consisted of a number of frontier pushes, corresponding to cyclical booms in different commodities.” [5] Despite refusing that dimension of the analogy, the ecocritic should not refuse the use of such analogies as a means of persuasion. By referencing images of Brazil with something American, Revkin encourages his audience to identify the Amazon with their own homeland, be it in the American West, Rhode Island, New Hampshire, or Louisiana. He then links the environmental struggle of the rubber tappers in the Amazon with the devastating effects of climate change which span the whole U.S: “The scorching summer in the United States that year [1988] had motivated politicians and the media for the first time to pay serious attention to the greenhouse effect...” (14). What appears to be an overuse of analogies with all things American, may instead be an effective literary device in motivating the audience to embrace a limit.

The storyline in TBS can be traced through the personal history of Chico as well as the social history that defines the system into which he was born. From an ecocritical perspective, both focuses have their advantages and disadvantages to motivate the readership. The story of Chico evokes a great deal of sympathy and allows the reader to change places. However, if such sympathy is confined to Chico and Chico is now long since dead, then the focus detracts from

exposing how the system crushes both the people and their environment. On the other hand, had Revkin focused on just the system and not simultaneously developed the persona of Chico, then the horror of deforestation might have become sufficiently abstract to become impersonal. Revkin does a remarkable job of putting Chico in the context of the system and even the most torpid reader will rightly blame the system for his murder. The trap of debt is the de facto institution of slavery:

An energetic tapper could harvest more than a thousand pounds of rubber a year. But it would invariably be bartered away at an impossibly low rate of exchange, leaving a gaping deficit. The deficit was increased by rampant cheating; it was not even necessary for a boss to tamper with the scales because most of these nordestinos were both illiterate and innumerate. On top of this mounting debt would be added the annual rent for the use of the trees, which typically was 130 pounds or so per *estrada*. Tappers buried under this sort of debt referred to themselves as *cativeiro*, captive. Euclides da Cunha, a Brazilian journalist who powerfully documented the inhumanity of the rubber boom, wrote that the *seringueiro* ‘comes to embody a gigantic contradiction: he is a man working to enslave himself!’ (57-58).

A tough sell in America: The messianic and Marxist persona of Chico Mendes

Some analogies are left unsaid and this may be wise from the ecocritical criterion of motivating action. The comparison between Chico Mendes and Jesus Christ is one of them. The messianic persona of Chico Mendes is a *leitmotif* that starts in the very first chapter but is never made quite explicit:

By Christmas morning, more than a thousand people had crowded around the church. The rains had returned in force, drenching the mourners who followed the casket to the cemetery on the road leading out of town. At the head of the cortege, a young man studying for the priesthood held aloft a wooden cross with a painted portrait of Mendes fastened to the middle (13).

Like the story of Christ, Chico in death would not be forgotten: “Mendes’s house was turned into a small museum, and the guest book filled with a thousand, then two thousand, then---by the end of the dry season of 1989---four thousand names” (15). Even Sebastião Alves da Silva, the ruthless father of Chico’s murderer, would recognize the spirituality of his son’s victim: “Chico Mendes spent too much time alive” (280). With the international notoriety of the murder, Sebastião would later complain “Even when Jesus Christ died, there wasn’t as much publicity.” (279)

Chico did not want martyrdom. The opening quote of the book is dated December 9, 1988, less than two weeks before his murder

If a messenger came down from heaven and guaranteed that my death would strengthen our struggle, it would even be worth it. But experience teaches us the opposite. Public rallies and lots of funerals won’t save the Amazon. I want to live.

Having studied Chico’s life and death, Revkin comes to the opposite conclusion of Chico, which also invites an analogy with the historical figure of Christ and the Romans: Although the murder of Chico Mendes did little to change the way justice is administered in the Amazon, it did much to improve prospects that large tracts of the rain forest might be saved for the people living there. In a way, Mendes contradicted his prime directive in death, he accomplished even more than he had while alive (288).

Other elements of Chico’s life have their parallel in the New Testament. Chico identified with the poorest of the poor and chose to become one of them; the union of rubber tappers seldom had the money to pay him even the meager salary he was due. The modest house he owned was a recent gift from Adrian Cowell and Mary Allegretti. Despite material deprivation, Chico never forsook his principles: “[T]hese ranchers did not want to negotiate; they wanted to buy Mendes off. He was offered money, cattle---he could even pick the finest animals himself---if he would tone down his union’s actions” (244). Even the relentless violence did not move Chico to reciprocate with violence. Also like the story of Christ, Chico was rejected by his followers: “Politics was in his blood, but he refused to do what all politicians must do to win---bend his principles to suit the electorate” (210). As Chico’s imminent death becomes evident to all,

including Chico, he does not flee: “I would be a coward to do this. My blood is the same blood as that of these people suffering here. I can’t run. There’s something inside me that cannot leave here. This is the place where I will finish my mission” (268). Revkin implies that Chico found an inner peace and had accepted as fact his own very avoidable death.

With all these parallels between Chico and Christ, and with Revkin’s narrative strategy of drawing analogies and spelling out metaphors, why does this one go unsaid? An answer lies in the proposed definition of ecocriticism. Any explicit comparison of Chico with Christ would very much detract from the goal of motivating an American public to embrace limits. Many Americans would find blasphemous any parallel between Chico-the-Marxist with Christ-the-Savior. Hazarding the fallacy that “absence of evidence is evidence of absence,” we claim that the omission is judicious and puts *The Burning Season* squarely within The Ecocritical School of Deforestation. Indeed, the inclusion of the Chico-Christ analogy would be counterproductive to bringing Americans on board to international agreements like the Convention on Biological Diversity or the Kyoto Protocol. The reader who, on the basis of TBS, now votes for politicians who support the ratification of these treaties, is a reader who is doing a lot for the protection of the Amazon and the rubber tappers.

Conservation as a Consequence of Sustainable Use?
or Sustainable Use as a Consequence of Conservation?

Deforestation is a Gordian knot and journalism affords a straightforwardness that fiction often does not. Whereas Sepúlveda will weave some thread of that knot into various vignettes, Revkin can simply state the point and move on. In descriptive passages like the one below, Revkin explains the interconnectedness of the flora and fauna:

The truck emerged into the smoky sunlight and squeaked to a halt under a lonely Brazil nut tree...They illustrate vividly how no element of this elaborate biological system can thrive on its own. The government recognized that the economic value of the living tree far outweighed the value of the timber or pasture; tens of millions of dollars’ worth of

Brazil nuts are exported each year, mostly to the United States. But the problem is not solved so easily. To produce nuts, the trees have to be pollinated. Biologists have since found that large euglossine bees, which are the commonest pollinator of the Brazil nut trees, cannot thrive outside the forest...When a Brazil nut tree is isolated, the progression is simple: no forest, no orchids; no orchids, no aroma; no aroma, no swarm; no swarm, no mate; no mate, no bees; no bees, no Brazil nuts (80).

The above passage illustrates the unintended consequences of Western contact with the Amazon. It is a core theme in TBS and all the works of the ecocritical package. Whereas the works of fiction imply non-intervention as the solution, TBS simply puts it on the table with other tendered solutions. Only once does non-intervention assume the prominence demanded by the Ecocritical School. Revkin quotes a conversation with a rubber tapper:

The roads bring destruction under a mask called progress. Let us put this progress where the land has already been deforested, where it is idle of labor and where we have to find people work...But let us leave those who want to live in the forest, who want to keep it as it is. We have nothing written. I don't have anything that was created in somebody's office. There is no philosophy. It is just the real truth.

Revkin follows the quote with "The tappers would have to fight to preserve that truth"(121-122).

To analyze "the truth" economists isolate each cause of deforestation and its multiple effects among the multiple causes of deforestation, all with their multiple effects. Believe us, it is no easy task. Through some simplifying assumptions, models can be tested to determine the unintended consequences of opening roads in the Amazon. A falsifiable hypothesis is that the resultant colonization is the manifestation of rational behavior at the level of the individual. As we elaborated in Chapter Three, individual rationality can result in the tragedy of commons when one aggregates the effects of each person's actions on the common resource. This is quintessentially the Neoclassical School and Revkin elaborates the tragedy with respect to the planet's atmosphere (the commons) and global warming (the tragedy). Each of tens of thousands of ranchers burns a relatively small patch of forest and the aggregated effect of all their actions

constitutes a significant share of worldwide CO₂ emissions. What is rational at the individual level, is insanity at the group level. The logic of “The Tragedy of the Commons” is that the madness of deforestation is not madness at all; it is rational as long as one *assumes* that other individuals do *not* do likewise.

In TBS, individual-rationality/group-insanity is multi-tiered. Justification of one’s crime because others commit similar or worse crimes, lies at the heart of the tragedy. Sebastião Alves da Silva comments: “You show me a sheriff or soldier who obeys the law, then I won’t kill anyone” (279). The outcome of such individual-rationality/group-insanity across every sector of the Amazon economy is quantifiably absurd: “When all of the subsidies and tax breaks and operating costs of the ranches were tallied, it turned out that the incentives to bring cattle ranching to the Amazon cost Brazil \$2.9 billion. And after all of that effort, the Amazon was (and still remains) a net importer of beef” (110).

Frustrating any classification of TBS as exclusively Neoclassical School are the descriptions of non-rational patterns of behavior and landscape aesthetics. Nowhere is this clearer than the reasons for Chico’s death. Darly’s vendetta against Chico went beyond competing claims to the forests---he had lost face. Interestingly, this same machismo integrates with a landscape aesthetic. According to Revkin: “...ranching appealed to the sensibility of a large fraction of Brazilian businessmen, whose families made their fortunes on land in the south before they had moved to the cities. There was an appeal, a certain cachet, to being a *fazendeiro*, a rancher” (106). If humans are programmed to learn an aesthetic that rejoices in savannah-like environment, then the way to thwart the learning of such an aesthetic is to look the Gorgon in the face. Something similar can be said regarding male dominance hierarchies and machismo. For the Ecocritical School, education on a massive and unprecedented scale must be grounded in evolution, including human evolution (Question #6 in Table 3.1).

Although evidence from all four schools of deforestation can be identified in TBS, the discerning reader would nevertheless classify the text as predominantly Political Ecology which “merge(s)

behavioral models of impoverished smallholders and ‘neoclassical’ entrepreneurs, and add(s) specific elements related to the encounter of their production and social systems.” [6] One sees this in the success of the rubber tappers’ union to thwart the ranchers. Their activism in organizing at the community level is the most promising policy to ameliorate deforestation according to Political Ecology School (Question #6 in Table 3.1): ‘Strengthen community-based management, secure smallholder’s land rights...’ The thinking is that enough revenues will be generated from the sustainable use of the forest that the rational choice for the individual will be conservation. In the literature on sustainable development, such an outcome is portrayed as a win-win strategy: poverty is alleviated while the forests are protected. Win-win outcomes are contrasted to lose-lose outcomes, where poverty is aggravated and the land is deforested [7]. The story of TBS can be largely reduced to the ensuing conflicts between the win-win of rubber tapping and the lose-lose of ranching. To convince the readers that rubber tapping is indeed win-win, Revkin cites some of the quantitative research:

...more agronomists and forest ecologists from Brazil and abroad were making the trip to Acre and other parts of the Amazon to study the tappers and the economic potential of the standing forest. One study showed that a rubber tapper family----in areas where the tappers were free of rent and other obligations to the rubber bosses----earned more than \$1,250 in cash in an average year from the sale of rubber and nuts, and that did not include the value they gleaned from the forest by hunting, raising manioc and other crops, gathering fruits and building materials, and the like. The total income was estimated at \$2,400, more than double what a family in the slums of Rio Branco scraped together (219).

Poor timing may have prevented inclusion of the most famous of such valuation studies, that by Charles Peters, Alwyn Gentry and Robert Mendelsohn which appeared in the journal *Nature* at about the same time TBS would have gone to press. What happens to the price of rubber, nuts, etc., when the Amazonian agro-foresters follow the advice and, *en masse*, scale up production? [8] Like the tragedy of the commons, what is good for one, is no longer good when done by all (i.e., the fallacy of composition). When agricultural produce floods the market, the demand for

that produce enters an inelastic zone where prices and revenues collapse. Besides ignoring this ECON 101 lesson, a deeper conceptual problem belies such valuation studies. What happens when the revenues generated from rubber, nuts, etc. do not meet the value of the timber or pasture? Is cutting or clearing then justified? As we saw in Chapter Three, valuation studies ultimately plug into cost-benefit analysis which renders an optimal level of forests/deforestation thereby letting extinction enter through the back door. As we also argued in Chapter Three, an alternative to “conservation as a consequence of sustainable use” is “sustainable use as a consequence of conservation.” The two positions are not symmetrical. The former means if the sustainable use does not pan out financially, there should be less conservation. The latter means that a limit has been set and if the sustainable use does not pan out, then the limit will nevertheless be respected as the country keeps on trying to find a sustainable use. This is the essence of the Ecocritical School’s answer to Question #6 and integrates with a larger movement known as “deep ecology.” Although Chico had certainly never heard of deep ecology much less ecocriticism, the distinctions among the economic schools would not have escaped him:

Mendes was becoming wary of being cast as an environmentalist by the media. Those who lived outside the rain forest, both in Brazil and abroad, seemed interested only in the hummingbirds and the trees. One night, while Mendes watched television at the union hall with some friends and a reporter, a documentary described the greenhouse effect and the carbon dioxide that was spewing from the burning forests of the Amazon. Suddenly, there was Chico Mendes, the Amazon’s own ecologist, depicted as fighting to save the ‘lungs of the world.’ In a rare display of frustration, Mendes jumped up and yelled at the television, ‘I’m not protecting the forest because I’m worried that in twenty years the world will be affected. I’m worried about it because there are thousands of people living here who depend on the forest---and their lives are in danger every day’ (261-262).

There are many ways to interpret Chico’s tirade. The Neoclassical School will see utilitarianism, the Impoverishment School, the trap of poverty, and the Political Ecology School, a call for solidarity. In distinction, the Ecocritical School will analyze the evolutionary psychology of the outburst. One suspects that an internal conflict was simmering in Chico. It seems reasonable to

assume that Chico shared a biophilia every bit as strong as his deep ecology friends in the North. Unlike them, he knew his expression of biophilia was subordinate to simple survival. Inasmuch as they lived at consumption levels well beyond survival, they could fight for “the hummingbirds and the trees” and not ponder the question “what if we were hungry?” Rubber tappers had not yet achieved food security for themselves and their family and, hence, Chico’s frustration and anger. The encroachment by ranchers was steadily reducing their food source. One of the most moving passages of TBS substantiates the ecocritical interpretation. The scene illustrates how hunger deprives the poor from expressing a biophilia they nevertheless feel:

Even hunting for game to supplement the limited stores of rice and beans presented novel difficulties. Many tappers, for example, tell similar stories about the first time they shot a monkey, an act that became a sad rite of passage into *seringueiro* society. Inevitably, the stories focused on the moment after the tapper raised his shotgun and fired, and a wounded monkey tumbled to the forest floor. As the hunter approached, the monkey’s face contorted in pain. The animal stared uncomprehendingly at its torn flesh, then turned to stare imploringly at the startled hunter, who was horrified to notice for the first time just how human a monkey looks. Then the tapper remembered his children crying of hunger; although repulsed at his own actions, he reloaded and shot again (62-63).

Through the lens of the Impoverishment School, one could say that, were poverty less prevalent, biodiversity would be less threatened (Question # 5 of Table 2). But the quoted passage also exposes the immorality of the system which forces the tappers to kill monkeys with whom they very much empathize. The image is powerful on an emotive level and takes the reader into the dynamic of how hunger induces moral conflicts *unknown* and in certain respects, *unknowable* to those who have not suffered them. Chico’s personal journey gives hope that the individual, once lifted from abject poverty, will not have become irreversibly hardened by prior hardships. “He was not just quick at absorbing the new environmental approach, but quick at making it a fundamental part of his mental and emotional framework. Mendes equated ecology with his lifelong love for the forests in which he had grown up; he was inherently an environmentalist” (207). The fact that Chico was assimilating an eco-aesthetic in his 40s is an indicator that other

rubber tappers, with similar lifetime experiences, can become advocates of “deep ecology” once conservation need no longer be the consequence of sustainable use. Such psychological internalization is the answer to Question #6 from the Ecocritical School (What are the most promising policy options to ameliorate deforestation?) To update Marx, a reserve army of deep ecologists already exists:

The rhythm of the rubber tappers’ life was thus harmonious: they extracted value from the forest without devastating it. This is not to say that they had no impact; the pressure from hunting usually caused the largest mammal species to diminish, particularly such valued prey as tapir. But unlike the *caucheros* of neighboring Peru and Bolivia, who killed the trees and moved on, Brazil’s *seringueiros* lived in relative balance with their environment. Ninety-eight percent of the average *colocação* remained covered by forest (77).

Recasting Chico for the movies

Chico Mendes was a Marxist. Revkin put that Marxism in the context of debt peonage in order to make Chico more palatable to an American audience. Several pages are devoted to Chico’s teacher, Juarez Távora, a former army officer, communist, and fugitive:

As Távora spun his tales of the class struggle---sprinkled with references to Lenin and Marx---Chico Mendes was mesmerized. Later he frequently referred to his time with Távora as a crucial lucky stroke (89).

Because Marxism is a crucial aspect of Chico’s persona, Marxism cannot be left out of any honest biographical work. Nevertheless, director John Frankenheimer felt no such compunction in the adaptation of TBS for HBO cable television. Although the 1994 movie is “based on the book,” Marxism is excised from Chico’s persona as well as is any hint of a messianic role. For example, one of the early scenes has Távora teaching arithmetic with poignant examples from debt peonage; Chico is a wide-eyed impressionable boy. The scene suggests the significance of

Távora in the formation of Chico's political consciousness. However, there is no hint in the movie that Távora was a former army officer, communist, or fugitive.

In the movie version of TBS, such omission of facts is complemented by a commission of errors. The gentle and unassuming nature of Chico has been purged and replaced with its opposite. Whereas the Chico described by Revkin is a Brazilian other Brazilians would readily recognize, the HBO character, played by Raúl Julia, is hard-edged, fiery, and markedly unBrazilian. Totally absent is "the celebrated sweetness of Brazilians." [9] Even the body type of Chico is miscast; Raul, in real life, was suffering terminal cancer and is a gaunt ectomorph while Chico in real life was a somewhat pudgy and healthy endomorph. Frankenheimer has remade Chico as a lean-and-mean macho man who is defiant (whereas Chico was easy-going) and aggrieved (whereas Chico was long-suffering). In real life, Chico was reminiscent of Jesus in the Gospel of St. John (16:33) "In the world ye shall have tribulations, but be of good cheer; I have overcome the world."

To make the HBO Chico cohere with the baseline of the story, Frankenheimer presents the Gandhian tactics of non-violence as a calculated ploy rather than the simple consequence of a peace-loving persona. If misery likes company, then the memory of Chico will feel no loneliness in this made-for-American TV rendition; the characters of film-maker Adrian Cowell and anthropologist Mary Allegretti are so distorted that they invite the ridicule of any informed viewer. Indeed, only the assassin Darly comes close to a faithful adaptation of the person depicted in the book; apparently it must have been easier for Frankenheimer to project the role of a real-life villain than that of real-life heroes.

The lack of fidelity of the text-to-film adaptation is so outrageous that it even extends to the location. "The Burning Season" was not filmed where Chico spent his life: Xapuri, Acre. Nor was it filmed somewhere else in the Brazilian Amazon or even in one of the other Amazonian countries. It was filmed in Mexico. Not only is the fragmented and degraded rainforest in Mexico extremely different than the pristine forests of Acre, but so too is the culture that infuses each scene. For example, the Mexican extras sing protest songs in Portuguese with markedly

Mexican accents and demeanor. Even little things that would have been almost costless to have corrected are wrong, wrong, wrong; the sandals are the leather *huaraches* of Mexico and not the colorful flip-flops (*havaianas*) of Brazil. We liken the HBO movie to the silent 1918 classic “Tarzan of the Apes” which was shot in the Louisiana bayous with backdrops of American Live Oaks draped in Spanish moss.

How should advocates of Amazonian conservation react to the HBO film? Here we see the dilemma inherent in the definition of ecocriticism proposed in Chapter One. On the one hand, the ecocritic wants to gauge how well a work of art represents the physical world, with a bias toward works that are verisimilar. On the other, an imperative exists to motivate audiences to live within limits. In pursuit of that goal, some authenticity can be sacrificed. The question is one of magnitude. How much? In Revkin’s book, very few inaccuracies surface; in Frankenheimer’s film, they overwhelm and choke the knowledgeable viewer. Nevertheless, and as much as we hate to admit it, Frankenheimer’s shoddy job can probably be justified from an ecocritical perspective. Costs were undoubtedly minimized by shooting in Mexico which thereby made the investment risk tolerable. Thinking in terms of return on investment, even the bastardization of Chico is justifiable. HBO subscribers would probably have reacted poorly if Chico were to have come across as some sort of rainforest Jesus Christ, clad in *havianas* and Marxist to boot! A successful and faithful depiction would have sparked ire among evangelists and facilitated percepticide. One can easily imagine a Pat Robertson or a Jerry Falwell urging his TV congregation to vote, not just with their remote controls, but with their cable subscriptions. So, the tradeoff is clear. The unfaithful depiction of Chico reduced the financial risk of a boycott and may have even facilitated the five awards granted (Emmy, Environmental Media, Golden Globes, Humanitas, and Screen Actors Guild). The awards themselves are evidence that Amazonian deforestation and mass extinction have penetrated the social sphere. Inasmuch as Chico stated that he was willing to die for the rainforest if he thought it would do some good, the least the ecocritic can do, is tolerate a very mal (mal) adaptation which succeeds in raising consciousness among the American public. However uncomfortable this conclusion may be for

the purist, it does not forego the possibility that the ecocritic can also advocate a remake of the HBO film once a limit is binding on the Amazon.



Chapter Six

Maira

In *Land of Metaphorical Desires*, Pedro Maligo classifies the literature of the Amazon along three main lines of (a) factual documentary, (b) social commentary, and (c) ideological projection...Documentary intent occurs at the level of immediate signification of the text...Social commentary is linked to the historical discourse but depends, to a certain extent, on the metaphorical depiction of Amazonia...Finally, ideological projection belongs entirely to the level of connotation, as Amazonia, initially presented as a space apart through the use of mythical text, is then metalinguistically created or conquered. [1]

Although the classes (a), (b), and (c) are not mutually exclusive, works can be classified as belonging predominantly to one of the three. Chapter Four analyzed *The Old Man Who Read Love Stories* as a social commentary (category (b)), Chapter Five took up *The Burning Season* as a factual documentary (category (a)), and in this chapter we will consider *Maira* as an ideological projection (category (c)). Because we find ideological projection more thought-provoking than either social commentary (b) or factual documentary (a), *Maira* follows *The Burning Season* and *The Old Man* in our ecocritical analysis.

The storyline

Maira will humble any critic who attempts to tease out a linear development of the characters. Although there is a clear beginning and end, the progression is embedded in a cluster of vignettes narrated by both real and imaginary characters. The ideological projection takes the form of a psychological drama. Ellen Spielmann captures both the complexity and simplicity of the book when she writes:

The novel begins as a police story which unfolds into a larger mesh of genres. In its development, the text alternates among historic fiction, travel adventure, ethnographic reporting, and mystic narrative. Launching himself into ultra modern narrative strategies, Darcy seems to be traveling down the road with a firm grip on historic facts, social phenomena, and cultural significance. All the while, he maintains a profoundly ethical stance with respect to the politics of representation (translation ours). [2]

Although *Maira* affords multiple interpretations depending on whether it is read as a police novel, etc., a central message emerges: non-intervention. The message is first voiced in the opening pages through the character of Avá/Isaías. His names reflect the dual nature of his existence and is a not-so-subtle metaphor for the impossibility of assimilation. Born to the Jaguar clan of the hunter-gather rainforest tribe Mairun, Avá is raised at the nearby Catholic mission where he is assigned the name Isaías. As a well-adjusted adolescent, he is sent off to Rome to become a priest. Decades later, he returns home as a troubled adult trying to recover from the years of forced assimilation. His confessions to Father Ceschiatti in Rome reveal a tormented psyche ...the sin of envying the capacity to be indistinguishable from the others. To be equal, in spirit of all possible differences---thanks to an essential identity---is what I yearn for. I rack my brains think about this. And I make no headway (15).

A crescendo builds in Avá/Isaías

I am Mairun, I am of the Mairuns. Each Mairun is the Mairun people as a whole. More so than an Italian is Italy, or a Brazilian, Brazil. It is so because we are threatened with extermination, and it is necessary that our people should survive and thrive in the last of us. This is the only command of God that completely moves me: that each people retain its

identity, with the face that God gave it, whatever the cost. Our duty, our destiny---what to call it?---is to resist, as the Jews resist, as the Gypsies, the Basques, and so many others. All are improbable but alive. Each of us improbable people, is an aspect of God. With its own language that changes with time, but that changes only within limits. With its customs and peculiar ways that also change, but change in a similar fashion, according to its own spirit (16-17).

The epiphany of Avá/Isaías bodes ill for neoclassical economists who trumpet the benefits of globalization while pooh-poohing the attendant traumas. Avá/Isaías discerns the false assumption in the reasoning of his confessor, Father Ceschiatti, who cannot comprehend the horror afoot:

He insists that there is nothing extraordinary about me: every man, he says, has his roots, whether they be in a Genoese village or a New York borough or in a little tribe in the interior of Brazil. What he does not understand is that I have more than my share of roots. I am full! His village is part of a nation; it is a borough or a town or a suburb, and, as such, it can even be forgotten because it is part of a whole. With us, the Mairuns, it is different. My village is not a part of anything. It is a people unto itself; that is to say, a tribe with its little language, its little religion, its little customs destined to disappear (13-14).

One infers not so much the Political Ecology dictum “strengthen community-based management” but the far more radical position: do not tamper with the existing community-based management which lies in native identities. Avá/Isaías sees the rejection of any foreign-imposed system as essential to the survival of the Mairun.

At last everything is clear. In truth I was only acting, am still acting a script that I have learned. I am not, I never was, never will be Isaías. The only work of God that can come from me, burning my mouth, is that I am Avá, heir to the chieftan, and that I am beholden only to the Jaguar people of my Mairun nation (17).

Any policy other than strict non-intervention in primary forests erodes the “little language, little religion, little customs...” “It cost a lot for the Mairuns to learn to take refuge in their own way

of life. To accept nothing. To avoid all contact.” (155) To reinforce the message of non-intervention, Ribeiro gives it the authority of the Gods by the end of the book. The spirit Mairanee laments: “It is my people down there begging for the miracle: the exception. They want to continue to exist as they are...They can see, with dismay, the wave growing. They have a premonition that they will be engulfed” (308).

The fact that non-intervention, the central message of *Maira*, is not a core tenet of any of the original three schools of deforestation, justifies in and of itself the creation of “The Ecocritical School.” As we will elaborate, the application of ecocriticism to *Maira* exposes distinct answers to the six core questions of deforestation (Table 3.1) and makes the Ecocritical School analogous to a new theory in the Popperian sense

(5) t_2 has suggested new experimental tests, not considered before t_2 was designed (and not suggested by t_1 , and perhaps not even applicable to t_1); and t_2 has passed these tests.

(6) t_2 has unified or connected various hitherto unrelated problems. [3]

For the advocate of the Ecocritical School who asserts (5) and (6), *Maira* is a didactic treasure trove. Paraphrasing the William Faulkner scholar Jay Parini, we can say the following about Darcy Ribeiro:

With its complex shifts of time and multiple narrative perspectives, Faulkner’s [Ribeiro’s] work was ideally situated to exemplify modernism [ecocriticism]. The very difficulty of reading Faulkner [Ribeiro] seems itself to have been an attraction, as it saves readers something to ‘unpack,’ to disentangle. [4]

Analogies and Homologies: The Counterintuitive Implications of Ecocriticism

Ava/Isaías is only one among many voices in *Maira*, ranging from petulant gods and perfunctory bureaucrats to inured detectives and zealous missionaries. There is always someone with whom the reader can recognize and perhaps even identify. The main character, Avá/Isaías is verisimilar because he fully understands that “I have realized the most improbable of my possibilities” (81). In contrast, Alma is believable because she *chooses* an improbable possibility out of youthful

rebellion. Free-thinking and free-loving, she takes refuge in the Mairun village and her arrival coincides with that of Avá/Isaías. Their joint appearance naturally causes confusion about their personal relationship. The police enquiry into her death and that of her newborn twins on a deserted river beach, is the dramatic opening of the book; the haunting conclusion is the final report of the detective. Space, time, and place are intermingled in the various stories that elucidate what really happened.

The way Ribeiro develops the narrative is intrinsic to the story. Luiza de Maria, calls it “an orchestra of voices” where

Even though, in more than half of the 66 chapters, we find an omniscient narrator who knows not just the life of the indigenous village but also what happens at the missions, with the workhands that roam the settlement of Corrutela as well as the protestant ministers and the greedy traders like Juca, the story nevertheless is told from various points of view. Side by side with the “I” of the narrator, the subject of the discourse, is a narrative fragmentation into several “I’s,” becoming a kaleidoscope from which an image emerges from the various perspectives. A self-propelled image, pluralistic and ambiguous (translation ours). [5]

Perhaps orchestra and kaleidoscope are the wrong metaphors to describe the narrative. Antônio Cândido suggests a freight car in which indigenous and Western trajectories... converge in an admirable final chapter where the voices mix without any ostensible identity... as if we were inside a stream of consciousness, not of an individual but of an unequal collectivity, where whites and Indians are mixed into a common humanity. It is as if the monologue of the chapter “Egosum” and the polyphony of the final chapter “Indez,” represent the two poles of this beautiful book: the uniqueness of each character and the blended destiny of all of them, in a freight car of worlds that themselves blend [translation ours] (385).

The American reader will be reminded of the works of William Faulkner for reasons that go beyond the obvious similarities in techniques (e.g., mixing time sequences, switching narrators, and stream of consciousness). Ribeiro uses fiction in precisely the way that Faulkner endorsed its

use in his much publicized speech upon accepting the Nobel Prize for Literature in 1950: “The poet’s voice need not merely be the record of man, it can be one of the props, the pillars to help him endure and prevail.” [6] Given that Faulkner was widely emulated in “the boom” writers of South America in the 1960s and 70s, one suspects that Ribeiro was indeed familiar with Faulkner. Nevertheless, we admit that this is speculation. At the Darcy Ribeiro Foundation in Rio de Janeiro, we perused the personal library of Darcy Ribeiro and found no Faulkner novels among the stacks (incidentally, alongside Marx, we did find the first Portuguese language edition of Samuelson’s textbook classic *ECONOMICS*) But absence of evidence is not evidence of absence. We even speculate that Ribeiro may have even heard Faulkner speak in 1954 when the recent Nobel Laureate was in São Paulo attending the International Congress of Writers. Our steadfast speculation lies in the degree to which Ribeiro seems to have borrowed not only the idiosyncratic style of Faulkner but also specific images that are signature Faulkner.

We will unpack a trope from *Maíra* that we suspect was adapted from *The Sound and the Fury* and then explain its significance for the ecocritical enterprise. It is the unintended irony that befalls the use of a name. In *The Sound and the Fury*, the metaphor captures the dissolution of the Compson family; in *Maíra*, the eradication of an entire people. Both occur at the very end of the respective books and hold the capacity to crystallize key themes---in *Maíra*, the human consequences of “economic development”---in *The Sound and the Fury*, the farce of genealogical pretense and family privilege. To perceive the parallels, one needs to cite fairly extensively the passages that precede each. In *Maíra*, the passage is a hyper stream of consciousness where the narrator jumps from one character to the next, sometimes in mid-sentence. The tempo captures the frenzy of development that seized the Brazilian Amazon in the 1970s. Sr. Tônico works for a senator and explains how an airstrip will be laid in the rainforest where the warrior tribe Epexãs roams. “You’ll see; these pastures of the Epexãs’ here will soon abound with herds of livestock to make your mouth water” (350). By the jumbled verb tense, one is now in the future looking back and Sr. Tônico is queried about what happened to the Indians:

Those marginals---those dropouts, as the senator calls them---what a disgraceful lot. They wanted nothing to do with work. The solution was to call in a battalion of the Third

Regiment and evict them as squatters on the senator's estate. When the troops arrived and the Indians saw the soldiers, they fled (351).

To justify the expropriation of the land, the Epexãs are immediately demonized only to be later immortalized as nostalgic folklore of colonial frontier days:

The Epexãs are a very strange people; in truth, very evil...it is high time civilization arrived. It is Brazil that is now finally coming into its own, incorporating this river...all that will remain of that valley of the Epexãs will be their name: Fazenda [Ranch] Epexã. That's what the senator calls it (351).

One can compare the irony of Fazenda Epexã to the *same* functional metaphor and similar positioning in *The Sound and the Fury*. To make our case, we must again quote fairly extensively. In the Appendix: "Compson 1699-1945," Faulkner traces the multiple threads of the Compson family in a stream of consciousness that anchors the fleeting success of the family in the early 1800s with its acquisition of a square mile of land and construction of a grand house in which a future governor would be born. Following the Civil War, there is a steady decline of prestige and power:

the old square mile was now known merely as the Compson place---the weedchoked traces of the old ruined lawns and promenades...already known as the Old Compson place even...when the old governor's doomed lost nameless seventeen-year-old greatgreatgranddaughter robbed her last remaining sane male relative...of his secret hoard of money and climbed down a rainpipe and ran off with a pitchman in a traveling streetshow, and still known as the Old Compson place long after all traces of Compsons were gone from it...and still known as the Old Compson place even after the boardinghouse (and presently the golfcourse too) had vanished and the old square mile was even intact again in row after row of small crowded jerrybuilt individuallyowned demiurban bungalows. [7]

The bungalow development the "Old Compson place" and the ranch "Fazenda Epexã" are powerful ironies for the lost grandeur of the past. Decline becomes absolute with the

appropriation of one's name, be it Compson or Epexã. Inasmuch as *The Sound and The Fury* predates *Máira* by almost 50 years, one speculates that Ribeiro was struck by the Faulknerian metaphor. [8] In other words, the Fazenda Epexã is not an analogous trope to the Old Compson Place, it is homologous arising in Faulkner's, not Ribeiro's creative genius.

Accepting our speculation, the question becomes: does recycling diminish *Máira*? From a purely artistic perspective, one would probably have to respond yes. In modernism, originality is the *sine qua non* of artistic achievement. Ernest Hemingway threw down the gauntlet in his 1954 Nobel Prize acceptance speech, saying that the author "should always try for something that has never been done or that others have tried and failed." [9] Nevertheless, from an ecocritical perspective, recycling can even be *admired*. Ribeiro, a creative genius in his own right, must have realized that, sooner or later, some one would speculate on the homology. Taking the logic one step further, perhaps he was willing to exchange a bit of his reputation for originality in order to enhance the quality of the message---non-intervention in the Amazon. Our speculation is reinforced by Ribeiro's own admission, stated with a certain *élan*, that he synthesized diverse sources in *Máira*:

I had no scruples whatsoever in mixing myths, legends and stories from so many villages, mostly because I know well the Indians I talk about. I know that they have no fanaticism that one truth exists. They are perfectly capable of accepting multiple versions of the same event, considering each truthful. I am certain that any indigenous Brazilian, reading the mythology infused in *Máira*, will find it perfectly verisimilar (translation ours). [10]

By analyzing just one analogous metaphor between *Máira* and *The Sound and The Fury* (we believe others are there waiting to be unpacked) an ecocritical license emerges: the artist *should* use whatever works to promote living within limits. This deduction may apply to all polemics based on searing moral questions. We turn again to Stowe and deduce the same lesson when we put *Uncle Tom's Cabin* in the context of nineteenth century English literature. In other words, Stowe and UTC serve as a "scientific control" to the ecocritical license we deduce from Ribeiro and *Máira*. Just as Ribeiro freely admits to having drawn on the stories told him by indigenous

people, so does Stowe admit to having drawn on the stories told to her by runaway slaves. And just as Ribeiro crafted those stories in tune to ethnographic science, Stowe fortified the verisimilitude of her story through newspaper reports and court records. On the first page of *A Key*, Stowe tells her readers that [t]his work...has been a collection and arrangement of real incidents, of actions really performed, of words and expressions really uttered, grouped together with reference to a general result, in the same manner that the mosaic artist groups his fragments of various stones into one general picture...Artistically considered, it might not be best to point out in which quarry and from which region each fragment of the mosaic picture had its origin...[b]ut the book had a purpose entirely transcending the artistic one, and accordingly encounters at the hands of the public demands not usually made on fictitious works. (1)

Although both Ribeiro and Stowe acknowledge the factual bases for their novels, neither cites any artist for inspiration regarding the literary style or common scenes. For Ribeiro, one speculates that Faulkner inspired not just the narrative strategy of *Maira* but also specific metaphors. For Stowe, one speculates that both the style and whole vignettes were inspired, at least in part, in the works of others. Supporting that speculation is the fact that Stowe, in 1857, published a short story “The Mourning Veil” which borrows heavily, almost embarrassingly so, from Nathaniel Hawthorne’s “The Minister’s Black Veil,” right down to the title. [11] In studying UTC, we have stumbled on a vignette which closely parallels another by Charles Darwin’s in *The Voyage of the Beagle* (first published 1836). To appreciate their importance for the ecocritical enterprise, we cite the passage from *The Voyage* followed by that of UTC:

Chapter II Rio de Janeiro, April 4th to July 5th, 1832.

As it was growing dark we passed under one of the massive, bare, and steep hills of granite which are so common in this country. This spot is notorious from having been, for a long time, the residence of some runaway slaves, who, by cultivating little ground near the top, contrived to eke out a subsistence. At length they were discovered, and a party of soldiers being sent, the whole were seized with the exception of one old woman, who, sooner than again be led into slavery, dashed herself to pieces from the summit of the

mountain. In a Roman matron this would have been called the noble love of freedom; in a poor negress it is mere brutal obstinacy. [12]

Chapter XVII. The Freeman's Defense *Uncle Tom's Cabin*

At this moment, George appeared on the top of a rock above them, and, speaking in a calm, clear voice, said, ---'Gentlemen, who are you down there and what do you want?' 'We want a party of runaway niggers" said Tom Loker. "One George Harris, and Eliza Harris, their son, and Jim Selden, and an old woman. We've got the officers here, and a warrant to take 'em; and we're going to have 'em, too. D'ye hear? An't you George Harris, that belongs to Mr. Harris, of Shelby County, Kentucky?"

...George stood out in fair sight, on the top of the rock, as he made his declaration of independence; the glow of dawn gave a flush to his swarthy cheek, and bitter indignation and despair gave fire to his dark eye; and, as if appealing from many to the justice of God, he raised his hand to heaven as he spoke.

If it had been only a Hungarian youth, now, bravely defending in some mountain fastness the retreat of fugitives escaping from Austria into America, this would have been sublime heroism; but as it was a youth of African descent, defending the retreat of fugitives through America into Canada, of course we are too well instructed and patriotic to see any heroism in it; and if any of our readers do, they must do it on their own private responsibility. When despairing Hungarian fugitives make their way, against all the search-warrants and authorities of their lawful government, to America, press and political cabinet ring with applause and welcome. When despairing African fugitives do the same thing,---it is---what is it? (218-220).

Are the two sets of parallel accounts from *The Sound and the Fury/Maira* and *The Voyage of the Beagle/UTC* merely analogous? Commonplace tropes? Before the advent of suspension bridges and high-rise buildings, suicide-by-precipice was more common than it would be today. Or are the passages homologous where the origins can be ascertained by the simple date of first publication (Ribeiro recycling Faulkner, Stowe, Darwin)? Each reader will have to decide how

probable is it that Ribeiro independently converged on Faulkner and Stowe on Darwin versus how probable is it that the Ribeiro and Stowe, both well read and unabashedly willing to borrow, recycled Faulkner and Darwin. If the reader concludes that aspects of *Maira* and UTC are more likely homologous than analogous, what should we make of it?

Ecocriticism is surprisingly tolerant. By our proposed definition, it would indeed have been prudent for Ribeiro or Stowe to have recycled powerful metaphors and vignettes from successful works because the purpose is the advocacy of limits, not art for arts' sake. The exposure of such homologies can even strengthen the commitment to live within limits. For example, a reader of *Amazonia in the Arts* whose curiosity is now piqued, may pick up *The Voyage* and attain an even deeper sense of biophilia from reading the young Darwin:

Among the scenes which are deeply impressed on my mind, none exceed in sublimity the primeval forests undefaced by the hand of man...temples filled with varied productions of the God of Nature;---no one can stand in these solitudes unmoved, and not feel that there is more in man than the mere breath of his body. [14]

The Work/Leisure Dichotomy

Amazonian deforestation is a Gordian Knot. Implicit in the Impoverishment, Neoclassical, and Political Ecology Schools is that analysis can cut the Knot. Once cut, threads can then be woven into a new desired fabric, be it the “optimal” level of forest reserves for the Neoclassical School or some sort of sustainable development for the Political Ecology and Impoverishment Schools. In other words, faith exists that variables can be identified and measured so that the appropriate policy will be constructed and implemented. Diametrically opposed is the Ecocritical School which maintains that deforestation is fundamentally a question of ethics and that its causes and effects will often lie beyond our lens of resolution. Works of art cut the knot by illustrating how ideological projections from Western societies drive genocide, ecocide, and culturcide. Chief among those projections is the work/leisure dichotomy.

The dual notions of “work” and “leisure” are understood very distinctly in the indigenous economies of the Amazon. Pleasurable activities, viz., hunting and gathering, generate the goods and services of sustenance and money trade is replaced by reciprocal altruism. The cosmovision intrinsic to such economies is the only sustainable development that science has ever documented in the Amazon. It is evidenced by the simple observation that indigenous peoples have inhabited the basin for millennia without causing mass extinction. Unfortunately, that cosmovision now competes with a Protestant ideology that assigns morality to “work” and opprobrium to “leisure” that is not the reward for work. What will be the effect of a gospel of work on the Amazon forests? And the people who live there? Perhaps the answer lies in asking what has been the effect of a gospel of work on industrial societies? The philosopher Bertrand Russell wrote “in all seriousness, that a great deal of harm is being done in the modern world by the belief in the virtuousness of WORK, and that road to happiness and prosperity lies in an organized diminution of work.” [14] E.F. Schumacher perceived a complementary point in *Small is Beautiful*: “work and leisure are complementary parts of the same living process and cannot be separated without destroying the joy of work and the bliss of leisure.” [15]

The Mairun live their lives fully and their activities cannot easily be classified as either work or leisure. In fact, they identify work as a sort of slavery which is anathema to the Gods:

In the times when women ruled, everyone was driven to produce like the poor as Europeans are today. The men would have no more of that kind of captivity; they wanted time for relaxation. They wanted to have to go out to work at most only once a day. It could be in the morning or the afternoon, to till the fields, or to fish, or hunt; but let it be one thing each day...It is good to live the way Maira taught. At times, we think that he likes the Europeans best, but the blame may well be ours. As we prefer to lounge in a hammock or drift with the current, he obligated the others to work hard, without repose, and make things. We were not created for that purpose. We are best at gentle loving and slow fucking. Also we are good for companionship in general as we are not driven by avarice, not given to hanging on to property. We like to give. And we don't overtax ourselves...It is also very good to paint the body with beautiful colors, to stroll about,

swim, dance, drink cassava beer, sing, and make people laugh. This is how we like to live. This is how Maíra likes to see us. As for work, it's not too bad provided it is slow and easy and the sun is not too hot (181-183).

The ideology that work is moral and the absence of work, immoral, is part of the corruption of Avá/Isaías psyche:

Every day they do something like this: bogus hunting or fishing. Stupid, self-indulgent pranks. Meanwhile, they are waiting for the war that has not nor ever will come. As for real work, only grownups and the elderly do any work. And only a little at that. Except, perhaps, for the adult women who bear on their shoulders the burden of life, the responsibility of looking after and feeding so many lazy warriors. The girls are more interested in painting their bodies and faces and indulging in licentious liaisons than in hard work. Even so, they do more than the young men (277).

Part of the internal conflict of Avá/Isaías lies in his exasperation with the Mairuns' lack of a "work ethic" and in his simultaneous admiration of that same lifestyle. The conflict is a source of hope. When queried by Alma as to why he returned, Avá/Isaías responds:

One thing only: to live the everyday life of the Mairuns. To eat grilled or boiled fish that I caught myself, with now and then if I'm lucky a little meat. My desire is to live among my people once again, and with their help to cleanse myself of the oil of civilization and Christianity that has permeated me...How many more days, how many more months will have to pass before I won't ever again have to play your game: to lie and lie in accordance with the rules of the world? (142).

Just as Christianity reinforces the work/leisure dichotomy (the Sabbath being the day of rest), the animism of the Mairun reinforces a holistic relationship among all activities. Nowhere is this more evident than in the ceremony that accompanies the decomposing flesh of the chief Anacã. In the chapter entitled "Jurupari," one sees that there is no dichotomy between work and leisure and nothing even that separates the spiritual from the worldly:

On through the night, the day and the next night, we eat, converse and laugh; we eat, we drink, we walk about we shit; we eat, we drink, we belch, we spit, we vomit, we converse and laugh; we eat, we make love, we dance, we fuck, we sleep, we drink, and we vomit; we eat, we shit, we piss, we fart, we talk, and we listen: we eat, we walk about, we make love, we sing, we dance, we fuck, we sleep; we eat, we drink, we shit, we piss, we cry, and we laugh (78).

The incongruity of the work/leisure dichotomy with indigenous culture is put into high relief in an amusing scene between Avá/Isaías and the American couple, Bob and Gertrude. The couple are protestant missionaries whose fortified and impregnable home is mistaken by Alma as a flying saucer. Gertrude is “a linguist, graduate of Bright University” (211). and Avá/Isaías helps her to translate the Bible into Mairun. Bob classifies the translation as work and insists on paying Avá/Isaías “...we need to pay you. It’s not right for you to waste so much time with my wife without some remuneration” (266). There are many interpretations that can be made of Bob offering Avá money in recognition for helping Gertrude. The most innocent is that Bob feels guilty that Avá/Isaías is working but not being paid for that work. To an American reader, Bob seems to be trying to do the right thing. “Bob takes an envelope out of his pocket and tries to put it in the hand of Isaías who refuses it emphatically” (266). The visceral reaction of Avá/Isaías is reminiscent of that of Antonio in *The Old Man* when the gringo seizes the portrait of his beloved Dolores Encarnación del Santísimo Sacramento Estupiñan Otavalo and plops down a fistful of bills. When Avá/Isaías refuses the money, Bob realizes his ignorance of Mairun and even of Brazilian culture: “Isaías, Isaías, I believe I have offended you” (267). The quickness of such recognition leads one to a more sinister interpretation of Bob’s motives; through money exchange, Gertrude would gain power over Avá/Isaías. This later interpretation is borne out when Gertrude becomes authoritarian over Avá/Isaías: “She leaves me pencil and paper, tells me what she wants me to write down and goes away. At times, without reason or authority, she becomes angry and demanding as if I were her servant” (280). Finally, in the vortex of narrators in the closing pages of the book, the reader comes to fully appreciate that Gertrude is part of the horrific system of Amazonian deforestation while Avá/Isaías is part of the indigenous resistance

to that onslaught: “I will translate as you wish word for word. But I can guarantee that this way no Mairun will ever understand a word of Matthew. Please do as I say, Sr. Isaías. These are the instructions I am giving you. I gave them because they are the ones that I myself received” (348). Interspersed in the concluding stream of consciousness is a countervailing hypnotic dialog of seduction, put in italics, between the supernatural lovers, the falcon and the jaguar. The closing line of the book is an exchange between the lovers in the fictional Mairun language. Amidst the destruction in the guise of work, the unintelligible dialog affirms Faulkner’s most famous quote: “I believe that man will not merely endure he will prevail.” [16]

Through Alma’s interpretation of Avá/Isaías’ refusal of Bob’s money, Ribeiro drives home the incongruity of the Western work/leisure dichotomy and the indigenous cosmovision. Alma also fails to understand the reciprocal altruism of indigenous culture: “...if you work for that fool, let her pay” (267). By this time in the story, Alma has lived among the Mairun for two years and her misunderstanding of Avá/Isaías’ refusal indicates that, despite her best attempts, she is not assimilated at all. Her inability to understand the Mairun is further demonstrated when she classifies her own role among the Mairun in terms of work.

“Alma, have respect. Let me explain. You are here, living among us in our world, according to our customs. In a manner of speaking you are a mirixorã.”

“An what the hell is a mirixô...rana?”

“A mirixorã is a public woman, a class of women who don’t marry and don’t have children. They are always available, so to speak” (272-273).

Alma’s interpretation of mirixorã is to find its translation into the Western taxonomy of work and she continues:

“So that’s what I am. Mirixorã means whore, a whore for the Indians! Is that what you’ve reduced me to, Isaías, to a whore for the Indians?”

“No, this has nothing to do with being a whore, Alma. A mirixorã is a highly appreciated person. She is even consecrated in a ceremony. You are not a real mirixorã. They are selected and prepared for their function in such a way as to be superior to ordinary

women. So much so that Mairun women are hardly ever jealous of the mirixorãs who can fornicate at will with their husbands” (273).

Alma can only resolve her own internal conflict over her newly discovered identity by reclassifying it as something other than sex work. “I don’t know why, but I was very offended by the idea of being a whore for Indians. That doesn’t matter to me now. It is a function, not a profession like those of librarian, social worker or dentist’s receptionist. No, it’s a function, a religious vocation” (289).

Subjecting the Cosmivision of the Mairun to the Biophilia Hypothesis

Expressions of biophilia infuse *Maira* and almost all are in a religious context. A typical description is the following:

Within the forest, whistling at dawn and running on the ground, are the great curassows whose greenish-black feathers have a metallic sheen. Minuscule hummingbirds, each of its own color, circle, stop for an instant in the air, then fly off again, coming and going, tracing straight lines of color in the air. On the highest branches brilliant turquoise honeycreepers are hopping. At the summit of the treetops that reign over the green sea of green forest the hangnest orioles are screeching and extending their tails to show *Maira* the sun-yellow of their secret plumes (28).

Although Wilson’s succinct definition of biophilia as “the innate tendency to focus on life and lifelike processes” is sufficiently broad to encompass both the positive and negative associations of “life and lifelike processes,” the suffix “philia” seems to weigh more heavily the positive associations. So, “biophobia” was coined to address the negative. Professor Roger S. Ulrich defines it as “a partly genetic predisposition to readily associate, on the basis of negative information or exposure, and then persistently retain fear or strong negative/avoidance responses to certain natural stimuli that presumably have constituted risks during evolution.” [17] Whereas the biophobia of snakes and spiders has an obvious evolutionary explanation, the biophobia of a cathedral forest is more perplexing as it can also evoke biophilia. According to Ulrich, an

[evolutionary] perspective explicitly recognizes that the natural habitats of early humans contained dangers as well as advantages. A general argument...is that theoretical propositions for an innate predisposition for biophilia gain plausibility and consistency if they also postulate a corresponding genetic predisposition for adaptive biophobic responses to certain natural stimuli that presumably have constituted survival-related threats throughout human evolution. [18]

The biophilia (biophobia) hypothesis hinges on the ease of expression of the innate predispositions. Although the closed forest should easily elicit fear (biophobia) due to the possibility of predation, that same tree canopy can also induce attraction (biophilia) due to the possibility of extracting sustenance and managing threats. For example, “[f]lowering trees should be especially appealing because they have been major food sources for people throughout evolutionary time.” [19] Inasmuch as the same object can evoke either biophilia or biophobia, one understands the importance given education for the ecocritical school of thought (Question #6 in Table 3.1). By putting the rainforest in the context of sustenance, a text can draw out the biophilic response of the reader. By skillfully portraying the biophobic stimuli, that same text will morph biophobia into biophilia.

The inseparability of biophilia and biophobia is very much present in *Maira*. One sees this clearly in the creation myth of the Mariun: “The Old One created in turn the curupiras who are around there even today, hidden in the forest...Their occupation is to eat the souls of those who get lost at night in the forest. They are ill-omened, dangerous, treacherous” (106). Any predisposition against venturing out in the jungle at night would be evolutionarily stable given that felines, a predator of humans, are nocturnal. A culture that builds on that innate biophobia would also have greater survival value. Therefore, Avá/Isaías’s description of Mairun taboos is exactly what one would expect from evolutionary psychology:

All of us Mairuns are much afraid of seeing night fall there in the forest. If this happens, we sling our hammocks one next to the other and we keep the fire going, terrified, waiting for time to make its slow journey through this dark tunnel that is a night in the forest. Hours of dread are always realized when someone recalls a frightening story of

men asleep in the forest who lost their souls and became animals and lived as animals forever after (43).

The eleventh chapter of *Maira* (“Sucurijuredá”) exemplifies the biophilia hypothesis. It opens with an expedition that is infused with religious meaning: “...they don’t go to hunt or to fish. Theirs is another obligation: guided by Teró of the Falcons, they seek an enormous *sueuridju*, the biggest anaconda in the world” (53). Not only must the party of young men find an anaconda, the largest of all snake species, but they must find “the biggest [individual] anaconda.” Like the snakebite scene in *The Old Man*, the narrative meets Wilson’s criteria for the biophilia hypothesis to a tee. Indeed, Wilson could have been inspired by *Maira* when he abstracts that snakes “are poised to inflict vengeful death but also to bestow knowledge and power.”

The Mairun men catch the anaconda and struggle against that living muscle, difficult to restrain, extremely long...one by one, the young men pass in succession from the tail to the head, each of them offering his face to receive the mark of the truth of the anaconda. Once bitten they immediately go hold the snake in place of the companion whose turn it is. So, from start to finish, the snake continues to be held in place, maintained almost immobile, by more than twenty powerful hands. All have been bitten. Now it was a matter of how to let the anaconda loose, as it was still alive, testifying in the forest, with its shame, to the daring of Mairuns (55).

Is the scene just described, work? Or leisure? The answer is that it is neither. It is a cosmivision where social organization and economic production cannot be separated from cultural identity.

Despite the Mairun reverence for nature, many of their activities are hardly environmentally-friendly:

When it is time, when the gusts are strong, they light the torches and run first to one side, then to the other, as Teró directs, to form the great circle of fire that will lick and expand as it burns brush and scrub. This way they set an enormous trap of fire that will close on the beach near the canoes in about an hour. There, on their return, the men rest from their trek and wait for the game with their bows and arrows ready to fell whatever

comes...Emerging are deer, stags, anteaters, half a herd of elk, labba, coatis, snakes, agoutis, armadillos, a spotted jaguar, two ocelots, and even a black puma (57).

Equally appalling to green sensibilities are some of the methods used to hunt and fish: “Others search for suitable backwaters in which to stun fish with toxic plants, by far the easiest method” (53).

Lest we leave the wrong impression, we quickly add that such disregard is combined with profound respect for the non-human world. A few pages later, a black puma dives into the water and escapes the pursuit of the young men, “Teró plead[s] for them to let the jaguar go that had already gained its freedom” (57). In the ensuing hunt scene: “...*they had followed the puma for an entire day, never seeing it but guessing its presence from its rumbling and its tracks, now here, now there. Who was hunting whom?*” (61).

A paradox emerges: how can one claim that indigenous people have sustained the rainforest for millennia when many of their activities seem so destructive? David Attenborough suggests

It would be over-romantic, indeed plain wrong, to suggest that all these forest peoples, in addition to their other virtues, are archetypal conservationists, living in perfect harmony with nature. They will often take what they want from the forest with sublime disregard for any principle of conservation. They may fell a whole tree to get a single meal of fruit, or kill a bird for the transient pleasure of putting its plumes in their hair. That the forest is not devastated by such treatment is simply because their numbers are so small and the areas over which they wander are so vast. [20]

The theoretical framework to analyze the paradox is the heuristic $I=PAT$ where I is impact, P is population, A is affluence, and T is technology. The heuristic shows that sustainability of cultures like the Mairun may not be intentional. With a higher population and the same level of affluence and technologies, the environmental impact increases; likewise, holding the population constant but increasing the level of affluence or deploying more powerful technologies, also increases the impact. The equation $I=PAT$ was first formulated in 1974 and has been popularized

by Paul and Anne Erhlich in a number of works ever since. Garrett Hardin considers the equation "the third law of human ecology" and E.O. Wilson claims to ignore it and "suppose that the living standard of the rest of world can be raised to that of the most prosperous countries [is] a dream in pursuit of mathematical impossibility." [21]

The equation $I=PAT$ can shed much light on *Maira's* central message of non-intervention. Even the most rudimentary contact between indigenous and Western cultures can result in horrific environmental impacts. Avá/Isaías perceives this clearly:

If there is to be a change, it will come naturally. Slowly, very, very slowly. And the only changes I can foresee, those that I see coming, are for the worse...my faith is devoted only to this simple yet difficult thing which is to live once more among my people...I ask that civilization advance a little more slowly, not reaching there just yet. I know very well that we, the Mairuns, exist only because the Brazilians have in fact never been in the Iparanã. On the day they become interested in doing so, the Mairuns will be finished. It pains me a lot to think this, and it hurts even more to say it, but so it is. Our viability is improbable, and does not depend on us. Perhaps it depends only on God. Perhaps even God cannot save us (143).

Through a personal history related by Juca, the mestizo trader, Ribeiro shows how even minimal contacts from the Center can result in huge environmental impacts on the Periphery. Juca tells how his father pioneered the area by trading with the Indians.

First, was the rubber which the Indians collected, not through traditional tapping, but by chopping down the whole tree and letting the milk run out on the ground where it coagulated. Later on, this trade slackened, and business turned to turtle eggs and egret feathers...What's for certain is that they exhausted all that was easy and lucrative. For us, nothing remained but alligator skin, and now it's getting scarce (117-118).

As despicable as is Juca, the reader understands that Juca is just an agent---it is the system that is to blame. Avá/Isaías relates to Alma who, at this point in the story, is known as Canindejub, The Yellow Macaw.

To kill Juca? That would be easy. But a week later, five boat traders would be quarreling over the domain of the Iparanã. Forget any notion of finishing off Juca. As if he were the guilty one. I also think he's not the problem. He is the solution, yours and the Brazilian. We Mairuns and the Epexãs don't deal with Juca. We know that the best thing that he and all the whites can do for us is to stay out of our lives. To leave us in peace. Our problem lies elsewhere, and I have yet to understand it fully. Our problem is that of a little Mairun David, almost helpless, fighting a civilizing super-Goliath. The possibility of our winning is nil. But neither will we be defeated. We shall continue, century after century, more and more embittered with our disgust at ourselves (143-144).

Ava/Isaiás' commentary converges on UTC at multiple levels. At the abstract level of a system, Ribeiro is urging a withdrawal of the whites from colonizing the Amazon just as Stowe urged a withdrawal of the United States from the institution of human bondage. At a more personal level, both Ribeiro and Stowe expose the reader's complicity with the system. If one blames the agent of the system, one absolves oneself for not having participated in the political life necessary to end the system. For Ribeiro, the opportunistic trader Juca is not the ultimate cause just as the despicable slave trader Haley was not the ultimate cause for Stowe:

"He's a shocking creature, isn't he, ---this trader? so unfeeling! It's dreadful, really!"

"Oh, but nobody thinks anything of these traders! They are universally despised,---never received into any decent society."

But who sir, makes the trader? Who is most to blame? The enlightened, cultivated, intelligent man, who supports the system which the trader is the inevitable result, or the poor trader himself? You make the public sentiment that calls for his trade, that debauches and depraves him, till he feels no shame in it; in what are you better than he? (148)

The Allegorical Meaning of the Detective's Final Report Ribeiro reiterates the incomprehensibility of the indigenous cosmovision through the death of Alma and her newborn twins. The book begins with the initial inquest and, after completing just the first chapter, the

reader, like the detective, is puzzled. Over the course of the book and with a bit of help from the Mairun spirits who narrate some of the chapters, the reader learns what the detective does not:

- (1) that the gods Maíra and Micura are also twins and that Maíra left his seed in Alma when he, temporarily, possessed her body
- (2) that Alma's status as a mirixorã or public woman does not afford her the possibility of giving birth
- (3) that Alma's success as a nurse was interpreted as sorcery by the Mairun, correspondent to the status of an oxim
- (4) that the fate of an oxim is violent [Ava thinks: "It seems that when she cures anyone, she comes across as an oxim, poor soul. I ought to tell her how she will be slaughtered as an oxim if she does achieve glory" (279)].

The importance of these four facts lies in a precedent that foreshadows Alma's death. Toward the end of the book, the story is told of a young girl bitten by a rattlesnake. A male member of her clan, takes her to the oxim who cannot cure her. Shortly, thereafter, the young men "break into the thatched hut [of the oxim] from all sides at once. They grab, lift up and dismember the oxim on the spot. With only their bare hands" (335).

What would the astute reader conclude if he or she were in the role of detective? Flipping back to the opening chapter and rereading how Alma's body was found, one notes that "her face, hands, and legs were marked by striated scratches, some of which were partially infected" (6). The presence of the scratches appear only in this opening scene and the fact that they are partially infected seems incongruent with Alma's role as a dilettante nurse. Was she subjected to some violent rite and captive long enough for her wounds to become infected? Assigning her death to a ritual sacrifice seems consistent with the facts and circumstances. Moreover, it explains the motive.

The detective's report is an allegory for the hubris of "the economics of deforestation." Through deductive reasoning and empiricism, the West believes it can sort through the complexities of the deforestation system and find the answers to sustain the Amazon (the first three columns of

Table 3.1). Like the report, the solutions offered will be little more than ideological projections that teeter on a scaffolding of unsaid assumptions.

There is complete lack of any evidence of violence in all that I have seen thus far. And the absence of any disputes that may have given raise to a crime is also noteworthy. Nor is there any indication of possibly conflicting interests. Who could gain anything from the death of this woman? In all probability her death was caused by her having given birth to twins in adverse circumstances, among Indians who know nothing about proper hygiene or many other things that a civilized woman needs during her delivery (284).

One Function of the Ecocritic is to Integrate the Tale with the Artist

The life of Darcy Ribeiro (1922-1997) is a source of inspiration and its very study can help promote limits on Amazonian deforestation. A brief biography can only sketch a few of its highlights. [22] Prominent among them was a marriage of scholarship and *pro-active* politics. Ribeiro received a Masters degree in anthropology from the University of São Paulo in 1946 and then spent the next 10 years doing field work in the Amazon. When he returned, he founded the Museum of the Indian and the University of Brasilia. At a still relatively young age, he was appointed Minister of Education but with the military coup of 1964 that overthrew the democratically elected government of João Goulart, Ribeiro entered exile. Over the next dozen years he would write the five volume *Anthropological Studies of Civilization* and upon his return to Brazil in 1976, publish *Máira*, the first of several novels.

To celebrate the twentieth anniversary of *Máira*, a special edition was re-published in 1996 with a collection of reviews. Moacir Werneck de Castro comments on its sleeper status:

So it happens with so many literary works whose value is only later recognized...The novel by Darcy Ribeiro was received in an atmosphere of indifference. Except for one or two reviewers, there was no one in 1976 who identified the vigour, or level of originality of a work that, probably, is to the second half of the twentieth century Brazilian literature what Mario de Andrade's *Macunaíma* was to the first. Not being obliged to write about

current literary productions, I had held the hope that some critic would let out a scream of discovery. Alas, in vain. The launching of *Maira* occurred almost amidst the dissipating clouds (translation ours). [23]

Perhaps the world is fortunate that *Maira* was not recognized as a masterpiece at the time of its first publication. Star status could have enticed Ribeiro into the unproductive diversions typical of literary celebrities. Again one thinks of Faulkner: “In those days, famous writers flocked to the studios, where they were paid huge sums for doing relatively little...apart from pursuing younger women and drinking vast quantities of alcohol.” [24] Ribeiro immersed himself in the type of environmental politics and among his multiple achievements was the protection of 60 miles of pristine shoreline in the state of Rio de Janeiro as well as a 300,000 acre urban forest reserve---the largest in the world. In 1991, Ribeiro was elected senator and in 1997, one year before his death, he established a foundation which bears his name and engages in projects in education and culture.

When *Maira* is put in the context of Darcy Ribeiro’s remarkable life, there is little doubt that the novel was written with a political purpose in mind. The Darcy Ribeiro Foundation has chosen this quote to grace the homepage of its website.

...I end my life exhausted for all I have lived, but wanting to live even more, more love, more mischief. To you who are living a frustrated life, living a boring existence, all I can say is Courage! It is better to make mistakes seizing the moment, than to prepare oneself for nothing. That is, here and now, our contribution. Later we become cosmic material. Finished, minerals. Forever dead. (translation ours). [25]

Despite failing to achieve most of his desired results, Ribeiro held the unshakable belief that the individual can make a difference. His failures are testimony to his acumen for having chosen to tackle the big problems that, unfortunately, still confront us. The conviction that one can prevail and not just endure, is captured in a tribute to Darcy Ribeiro by Eduardo Galeano.

At the Sorbonne, Darcy Ribeiro was given the title of honorary doctorate. He accepted, he says, for the achievement of his failures. Darcy failed as an anthropologist, because the annihilation of the Indians of Brazil continues. He failed as a university president as he envisioned the university as a transformer of reality. He failed as the Minister of Education in a country where illiteracy expands. He failed as a writer who dreamt that history need not repeat itself. Those are his failures. Those are his achievements [translation ours]. [26]



Chapter Seven

The Emerald Forest

It is easy to make fun of the movie *The Emerald Forest* (1985) directed by John Boorman. Some critics liken it more to “*Crocodile Dundee* than *The Mission* or *Fitzcarraldo*” while others lament “too many clichéd scenes of frolicking in the river, courtship and coming-of-age rituals, and too few genuine insights.” [1] We agree but quickly add that *a work of art doesn’t have to be particularly good to be chosen for the ecocritical package*. That statement may startle the reader but it is wholly consistent with the definition of ecocriticism proposed in Chapter One. Selection of any work for the package is made in the context of the other works chosen for the purpose of jointly raising moral questions and promoting living within limits. Flawed works are not only admissible but necessary to flesh the out the audience reception to the deforestation system. For the exigent connoisseur of art, unconvinced by such reasoning, we add that a flawed work also heightens appreciation for the truly great works. As we shall argue in Chapter Nine, *Bye bye Brazil* achieves that status for film just as *Maira* achieved it for texts.

Set in the Amazon, *The Emerald Forest* is about a kidnapping, two quests (the father for his son and that son for his manhood) and the ecocide that engulfs them. The film begins with Tommy

Markham as a six-year old American boy (blond, of course) whose father, Bill, an engineer (the chief engineer, of course), is working on the Guarajás hydroelectric project (in reality, the Tucuruí dam). The family lives on the top floor of a high-rise apartment building in Manaus. From the balcony, the Rio Negro literally divides the “developed” and “undeveloped” worlds. Although the rainforest is visible, it is indeed a world away. Intermittently over the course of the film, an eagle will soar across the river as a metaphor loaded with mystical meaning.

Any recent visitor to Manaus will hardly recognize the Manaus that Boorman filmed in 1985. By 2005, the building where the Markham family lives no longer seems so modern or even very high. A countless number of higher high-rises have sprung up in the intervening years. Likewise, the bustle of Manaus today makes the filmed Manaus seem relatively calm. The film begins with Tommy having wandered away in the exuberant tropical foliage of a landscaped square. The mother Jean is a bit anxious for a moment or two. When Tommy is found, one sees that he demonstrates none of the fear typical of a lost five-year old. In the next scene, the father takes the family on a weekend day trip. Typical of men whose commitments are torn between family and work, Bill attempts to kill two birds with one stone, and the family picnics near the dam in progress. Bill uses the time to confer with the work crew.

The juxtaposition of the forest and the construction site is pure Political Ecology and constitutes a visual answer to Question #1 of Table 3.1: “What main, single factor is responsible for deforestation?” The role of international capital overwhelms the viewer. On a big screen, one fully senses the scale of the mega-projects with their monstrous earthmoving equipment. The scene depicts what can only be imagined in *The Burning Season* (e.g., two giant tractors in parallel, dragging a heavy chain and knocking down the shallow-rooted trees). It is a micro view of how macro havoc is being wrought. Complementary are aerial shots where Bill flies over the dam in a helicopter. Tucuruí stretches on and on like a piece of the Great Wall of China plopped down in the middle of the jungle.

Bill takes out a moment to teach Tommy some civil engineering. “You see the roots of the trees are not very deep and so the bulldozers just push them right down.” Tommy could care less--- those are the interests of his father. Tommy is engrossed in observing the leaf-cutting ants that scurry to their nest. Here the camera zooms in and stays focused on the ants with a technique more typical of *National Geographic* than of Hollywood. The biophilia of Tommy contrasts to the biophobia of his sister “Are there any snakes here Daddy?” Bill responds “No” as if he truly meant it. A verisimilar line would have been “Of course there are snakes. It’s a rainforest for Pete’s sake! Be alert.” We have no doubt that smashed snakes from the earth moving equipment could probably have been found right there where the scene was shot.

The ever-curious Tommy goes wandering off the site and into the forest. He returns with a sense of discovery and amazement, telling his parents of “smiling people.” Jean interprets the comment as a bid for attention and asks Bill to humor Tommy. Bill enters the forest with Tommy but the indigenous warriors are camouflaged in their midst. Bill returns and Tommy lags behind; annoyed, Bill goes back to fetch him. Suddenly, an arrow whizzes through the air and lodges in a tree trunk near Bill’s head. This close brush with death is an essential cliché for two reasons. First, the parents can rule out alternative explanations for Tommy’s disappearance (e.g., a hungry feline). Second, the arrow is a cultural artifact that identifies Tommy’s captors. With the foreshadowing of Tommy’s fearlessness and biophilia, the horror of the kidnapping is attenuated. Both the parents and the audience have an inkling that Tommy will be O.K. among the “Indians.”

The intended audience of this film is American and kidnappings of white settlers is an integral part of the American psyche. Moviegoers may recall the scene in *Last of the Mohicans* where the warrior reaches out to the little girl on a mountain escarpment who decides to jump rather than be carried away. Disturbingly, the philosophy “better to die” did not die out with the novels of James Fenimore Cooper. It has been institutionalized in popular culture and sustains much prejudice throughout the U.S., even where indigenous communities have long since disappeared. For example, at the Jump Jenny State Forest in New Jersey, one can see the spot where a father

and daughter were ambushed by a party of Lenne Lenape warriors. Stranded on a rock outcropping above, the father urged his daughter to jump to her death. For centuries, the interpretation has been that colonists thought it better to die a Christian than live the life of a heathen. [2] The explanation from evolutionary psychology is never vetted: a kidnapped child would distract the father in a dangerous rescue effort, putting at risk the wife and other children, better the rapid closure of suicide. The suppression of such plausible but less flattering hypotheses is another expression of percepticide, which, for The Ecocritical School, is the main single factor responsible for deforestation.

Bill and Jean show no signs of such cultural baggage. Their *tabula rasa* with respect to indigenous peoples and kidnappings detracts from the verisimilitude of the story. In real life, they would be first cursing the “Indians” and then demonizing them as do the contemporary colonists in the documentary *The Decade of Destruction* by Andrew Cowell. The miniseries begins with the story of three brothers ambushed on a beach by warriors from the tribe Uru eu wau wau. The older boys die from the arrow wounds and the youngest, at age seven, is carried off. His name was Fabio. When Cowell establishes contact years later with the Uru eu wau wau, he discovers the reason for the attack and what happened to the boy. The ambush was retaliation for a recent murder of a tribesman by colonists. As so often happens in human history and current events, individuals are punished for the crimes of other members of his or her group. [3] And as for Fabio, he was killed because he cried too much.

Tommy of *The Emerald Forest* fares much better than did poor Fabio or the legendary Jenny. Time compresses and the viewer learns from a caption that the family has been psychologically transformed from a decade-long quest to find Tommy. The arrow that was lodged in the tree ten years ago has been saved; its ethnographic classification indicates that Tommy is with the Invisible People (the arrow-as-clue seems lifted from Cowell’s documentary). However, Boorman does well by not copying the real name Uru eu wau wau. The name The Invisible People is a wonderful metaphor for percepticide as the leading cause of Amazonian deforestation: the true cost of the destruction will be borne by thousands of invisible people. Bill

and Jean become self-taught anthropologists during the evenings and their psychological transformation is another ecocritically redeeming feature of this otherwise bad piece of art.

The speaker of Portuguese will pause to laugh. By now, Bill would have worked and lived in Brazil for over a decade. Nevertheless, he speaks like someone picking up, for the first time, *Berlitz's Basic Portuguese for Travelers*. The actor seems to be voicing the pronunciations of Portuguese words spelt phonetically in English. No matter how many times we rewind and play back the video tape, Bill's Portuguese is unintelligible. The flaw is compounded in subsequent scenes when Bill meets the Fierce and Invisible Peoples and can readily make himself understood in *both* the Fierce and Invisible languages. When one views *The Emerald Forest* repeatedly, such flaws violate Scodel's second criteria for a work of art "that it be credible" and leads to disengagement. The ecocritical salvation is that the target audience will probably see the film only once and, therefore, miss most of the flaws.

The film now switches settings to village life deep in the rainforest. The viewer learns that the Invisible People are invisible because they camouflage themselves with a loamy green stone that is simultaneously the object of Tommy's quest for manhood and bridewealth for Kachiri. Although Boorman should be praised for the pan shots of the Amazon as well as for the construction site of the dam, his up-close scenes leave much to be desired. We are treated to Tommy/Tomme coming across a panther in a high rocky cascade while he is paddling a canoe in the swamp. Boorman gets an "F" for GEOGRAPHY 101. The cultural verisimilitude is also suspect. In another cascade scene, all that is missing is the spirit of Esther Williams. Indigenous boys---who, by the way, don't look very indigenous---dive into a sparkling pool at the bottom of a cascade. First one at 1:00 o'clock, the second at 11:00 o'clock two meters higher, and the third at 9:00 o'clock, ten feet above. Again the ecocritical defense: romanticized scenes do engender endearment and assist the psychological internalization of limits.

Despite such nitpicking, we must emphasize what *The Emerald Forest* does right. The movie was shot on location. As we shall see, the movies *At Play in The Fields of the Lord* and *Bye-bye*

Brazil were also shot on location; the text-to-film adaptations *The Burning Season* and *The Old Man who Read Love Stories* were not. A practical implication emerges with profound implications for economic policy and international law. Tourism is the biggest industry worldwide and hopes are high that ecotourism will be an integral part of sustainable development. Audiences worldwide are being defrauded when they see the disturbed lowland tropical forests of, say, French Guiana and the screenplay says it's the Ecuadorian Amazonian (*The Old Man*); ditto for Veracruz, Mexico passing as Acre, Brazil (*The Burning Season*). The falsification of location in the visual arts is as inefficient as it is inequitable. Just imagine the tourist who decides not to go to see the majestic upper Amazon of Ecuador because she thinks she saw the landscape in *The Old Man* and was unimpressed by the scenery. [4] Let us coin here the word *geopiracy* and classify it as an expression of percepticide which is the main single factor responsible for deforestation (The Ecocritical School, Question #1).

Returning to the plot of *The Emerald Forest*, the two trajectories (Western/indigenous) meet when the father decides to take some real time off (perhaps his vacation days accrued?) He is joined by a rather fastidious Italian photojournalist as they travel by boat into the interior. The tension between the two seems staged and doesn't quite work. Instead of finding the Invisible People, they end up being caught by the Fierce People, who live up to their namesake. Unlike the Invisible People whose bodies are painted in soft green and brown curves, the Fierce People are painted in sharp black and white angles. Whereas the Invisible People literally and figuratively step lightly through the forest, the Fierce People thrash about. Despite Bill's extensive reading in anthropology, he must have somehow missed the writings of Colonel Cândido Mariano da Silva Rondon, so eulogized in *The Burning Season*, [Rondon] insisted that the Indian tribes he contacted along the way be approached slowly and dealt with humanely. His trailblazing teams of sertanistas became renowned for their ability to establish relations with reclusive tribes. Their motto was: 'Die if necessary, but never kill.' Many did die and, until 1930, no Indians were killed (118).

Bill totes a machine gun and shoots one of the Fierce People in “self-defense.” He is captured and then released for sport, soon to be pursued as game. Without a qualm, Bill leaves the photojournalist behind who, one imagines, will be butchered. The crescendo of action consumes one’s attention and deflects the audience from reflecting on the whole chain of events that brought Bill into contact with those fierce Fierce People. Indeed, any reflection will lead to a violation of Scodel’s third demands of a narrative “that it be morally acceptable.” However, the audience may not disengage. The thrill of the hunt seems to short-circuit reflection as if our evolutionary psychology as hunters and gatherers trumps all moral reasoning.

In the man-hunting-man scene, the viewer’s heart may pound. Will Bill soon be served up as the main course? Was the photojournalist the appetizer? The suspense seems cut and pasted from Boorman’s earlier box office hit *Deliverance* (1972). As the Fierce People gain ground in the chase through the bush, the desperate Bill slides down an embankment and tumbles into a thunderous river below. Coincidentally, the patch of the river on which Bill lands is the same spot where one finds those loamy green stones which Tommy (Tomme to the Invisible People) must bring back for his intended father-in-law. On different sides of a crashing waterfall, father and son are mistaking each other as braves from the Fierce People. Bill shoots off a clip of his submachine gun at Tomme and misses him. How credible is that? The clichés escalate. The two again take aim, the father with his untrusty gun, and the boy with his flimsy bow and arrow. In the nick of time, they recognize each other (“Tommy?” “Daddee?”) and again, just in the nick of time, Tomme turns sideways and shoots an arrow which kills a brave who was aiming his arrow at Daddee. The rest of the Fierce People hunting expedition has caught up and the deaths of Tomme and Daddee would seem imminent. Straight out of *Deliverance*, Tommy/Tomme and Bill/Daddee save themselves by jumping (more like sliding) into the rapids and riding the Class II/III river.

Out of harm’s way, Tomme guides Daddee to his village deep in the jungle. Half-dead, Bill convalesces in a hammock. Bill appreciates just how complete is the transculturation of his son. He comes to understand that Tomme’s previous life as Tommy is now just a memory assigned to

a dream. Bill overcomes his anger and gains respect for the “other,” reminiscent of the central theme in Sepúlveda’s *The Old Man*.

The portrayal of native life lacks so much verisimilitude that it becomes laughable. Boorman has reworked the family structures to conform to middle-class American expectations. Kachiri, Tomme’s chosen wife, is very dissimilar to any genuine portrayal of indigenous foreplay. Tomme and Kachiri kiss and peck as would teenage viewers watching *The Emerald Forest* from the last row of a movie house. The reader of this ecocritical package will recall that most indigenous peoples are not particularly monogamous and none ever kisses (the Shuar woman in *The Old Man* vomits). One suspects that Boorman’s adaptation of indigenous family structure and courtship rituals was done purposefully to enhance audience reception. At times, the dances in *The Emerald Forest* are reminiscent of the choreography in Elvis Presley’s *Blue Hawaii*.

After being drugged with an hallucinogen administered through the nostrils, Bill is transported by stretcher through the forests back to the edge of the world, i.e., the construction site. One would think that the action of this action-packed movie would decelerate but Boorman seems to have gotten a second wind. The construction boom from the dam has generated a demand for prostitutes. The pimps have taught the Fierce People how to handle machine guns (like Bill’s) and the braves put their new artillery skills to use. While Tomme and his fellow braves were whisking Bill back to civilization, the Fierce People had raided the apparently-not-so-Invisible village. Older women, like Tomme’s indigenous mother Uluru, are slaughtered and the nubile girls, kidnapped. The village of thatched huts is burned to the ground. When Tomme and the others return and discover the massacre, little time is wasted in trauma. Under the direction of Wanadi, the elder tribesman, the bodies are cremated and the ashes imbibed in a funeral ceremony. To exist as a people, Wanadi instructs the young warriors that they must recover their women. It is a nice evolutionary touch.

In a reversal of plot, Tomme must now find Daddee in the urban jungle of Manaus. Commandeering a canoe in broad daylight and crossing the Rio Negro with another warrior (also

non-indigenous looking), Tomme disembarks in a slum on stilts (*palafitas*) which extends into the river. How verisimilar is that? Wouldn't it have made more sense to disembark at night on a bushy embankment? Again we hear the box office speak: sell, sell, sell. American audiences are strangely fascinated by images of Brazilian slums. Tommee is greeted by a band of gun-brandishing drunks but, fortunately, some assimilated Indians offer the two refuge. It's a Carlos-Casteñeda-Yaqui-Way-of-Knowledge moment. Through a drug-induced trance, Tomme remembers his old street address on the landscaped square from when he was five. In the next scene he is in front of the high-rise apartment building and strips a frond from an ornamental palm. Using traditional knowledge, Tommee binds his ankles together to scale the balconies and reach the top.

Now Daddee and Tomme take on *Ramboesque* personae. They plan to recapture the girls forced into prostitution. Bill, posing as a client in the brothel, communicates to the girls on how to synchronize their escape. The girls will wait for Tomme's war cry and then make a bee line to the backdoor. The scene that ensues is worthy of any Western saloon shoot-out. The girls are ultimately reunited with their men. Shedding garish garments, the resultant nudity of the girls actually becomes less provocative than when they were clothed.

On an emotional level, the brothel scene is an "absolute must" for any ecocritical package. The horror of being forced into prostitution will strike a chord of sympathy and outrage in audiences. A parallel can be found in the abolitionist literature. Stowe inflamed her female audience with a heart-wrenching portrayal of Emmanuelle, who was auctioned off "body and soul" to the lecherous Simon Legree. By making the behavior of Kachiri and her friends not unlike American high school girls of the same age, the horror that befalls them evokes greater sympathy than would, say, the more accurate portrayal of indigenous sex work found in the 1975 film *Iracema-Uma Trans Amazônica* by Jorge Bodanzky and Orlando Senna. Readers will again recall that Stowe did something similar. She made Emmanuelle light-skinned to enhance audience reception. A contemporary audience will cheer when Tomme kills not *just* the pimps of the brothel but also the hot-handed customers.

Reproduction is everything in evolution and evolutionists will suspect that the chord struck in the reader by sexual enslavement will resound across cultures and time. This means that its dramatic potential should be recycled in future works about Amazonian deforestation or in alternative ecocritical packages (say ones that include *Iracema*). The lesson of recycling and reworking powerful images can also be gleaned from the abolitionist literature. George Washington Carleton recycled Stowe's tale of Emmanuelle and Simon Legree with a factual account in *The Suppressed Book about Slavery!* Like Boorman, the imagery is explicit and disturbing.

Dr. C.G. Parsons, of Boston, Massachusetts, the Author of a Book on Slavery, entitled 'A Tour among the Planters,' in 1852, says:

The female Slaves can not be otherwise than degraded. Subjected at all times to the passions of the whites, chastity and refinement are out of the question. They are stripped entirely naked to be punished, not only on the Plantations, but by the city marshals in the cities, to whom the Slaveholders or 'Masters' send them for this purpose"...Only think of a Woman, entirely naked, surrounded by a profane vulgar crowd, while she writhes under the Lash, or is offered, for purposes of Prostitution, to the highest bidder! Such is the "Christianizing influences' of which Northern Drs. Of Divinity so loudly boast.' [5]

Just as forced prostitution is the inevitable consequence of slavery, so it is with mega-projects in the Amazon. In other words, the Brazilian government turns a blind eye and tolerates the atrocity as the price for "economic development."

Despite its multi-tiered flaws, *The Emerald Forest* is effective because it evokes reflection about specific moral questions like forced prostitution while raising the more encompassing issue of indigenous self-determination. When Bill implores Tomme that the world of the Invisible People will soon vanish, Tomme says that he knows how to stop the onslaught. He will summon the spirits---"the frog sings and it rains"---the father, at first, incredulous, realizes that his son's solution is an expression of his very being. Bill hugs Tomme in a frustrated acceptance of the

reality of “the other.” To argue the science would be to take on a culture which has co-evolved with the rainforest for millennia.

A rose may not be a rose, but *an engineer is an engineer is an engineer*. Bill knows very well that the frogs will not destroy the dam and, if not destroyed, his son and their collective descendants will be, probably sooner than later, annihilated. Although the Invisible People are praying for rain, Bill regards the torrential storm as little more than a coincidence. A brief scene of a surge of water foreshadows the denouement. The camera shifts to Bill, now at the control station inside the dam. He feigns to have miscalculated the tolerance levels of the structure and orders an evacuation. Alone on the site, he lays down dynamite in the cavernous chambers of the hydroelectric plant. For a classicist, the scene is fabulous metaphor for a troubled man descending into Hades; for an ecocritic, the scene seems inspired from Edward Abbey’s *The Monkey Wrench Gang*. The torrential rains continue as Tomme continues his incantations. A wall of water rushes through the river basin and busts the dam asunder, thereby making Bill’s engineering feat seem little more than what Wanadi had earlier called it: a log jam.

The final scene is a happy ending at---you guessed it---another one of those idyllic cascades. The girls are now wearing bikini-like costumes made out of leaves and look like cartoon characters in *The Flintstones*! Tomme surveys what is left of the decimated tribe and ---we sigh again---they are frolicking in the water. Kachiri speculates on who will end up with whom (also not verisimilar inasmuch as most tribes are polygamous). The radiant Kachiri seems more like an American bride at her wedding, speculating on who will be the next couple to marry, rather than a woman just recently rescued from the horrors of sexual slavery. Again, the director seems to have sacrificed verisimilitude on the altar of the box office.

Should a viewer of *The Emerald Forest* mistakenly take solace from the happy ending, the movie offers this epilogue:

The rain forests of the Amazon basin are disappearing at the rate of 5000 acres a day. Four million Indians lived here; 120,000 remain. A few tribes have never been in contact with the outside world. They still know what we have forgotten.

Unfortunately, the epilogue is probably necessary. There are many “couch potatoes” among movie audiences, some of whom will be surprised to learn that the word “Amazon” is not always followed by the suffix “.com.” Such viewers will rent *The Emerald Forest* because of its acclaimed action, drama, and scenery, and probably in that order. For them, a magnificent and non-sensationalist documentary like *The Decade of Destruction*, a true “true story,” would not pass muster on Scodel’s first criterion for narrative: that it be interesting. *The Decade* is two tapes divided in five parts and some 272 minutes long.

The Amazon needs movies like *The Emerald Forest* to penetrate the social sphere. And the movies need ecocritics like our readers, to evaluate such stories and determine the trade-off between verisimilitude and motivation.



Chapter Eight

At Play in The Fields of the Lord

What literary scholar Ruth Scodel said about credibility in texts, film scholar Brian MacFarlane seems to be saying about fidelity in film. “The issue of fidelity is a complex one but it is not too gross a simplification to suggest that critics have encouraged film-makers to see it as a desirable goal in the adaptation of literary works.” [1] Nevertheless, the verisimilitude of literary works is probably more common than is the fidelity of adaptations of novels to film and money is the reason. Film-making is a calculated decision. Any desire by the critics for fidelity must be aligned with the producer’s desire for return on investment. Only occasionally will a best-selling text sell enough copies to have a ready-made audience that demands fidelity in its adaptation to film. More likely, fidelity arises accidentally because the reader’s and filmgoers’ preferences are perceived to coincide.

The economics of novel-to-film adaptations re-inforces our admiration for Hector Babenco and Saul Zaentz, the director and producer of *At Play in the Fields of the Lord* (1991). Babenco is neither completely faithful in the adaptation of the novel to film nor does he portray the Amazon 100% faithfully. Nevertheless, an ecocritical license can be extended as the departures from fidelity and verisimilitude enhance the audience reception. This can be seen in a trivial example. An early scene centers on “ayahuasca,” a hallucinogenic drink distilled from the tropical vine

Banisteriopsis caapi. Infusions of *B. caapi* are best known among Americans as “ayahuasca,” the Quichua/Quechua word from the upper Amazon of Ecuador and Peru. Readers will recall that Antonio in *The Old Man Who Read Love Stories* used ayahuasca to stupefy and trap birds as well as to celebrate his recovery from the almost fatal X snakebite. Throughout Brazil, *B. caapi* is called “Santo Daime” and never “ayahuasca.” Being filmed on location in Brazil, the inaccuracy is obviously intentional. We suspect it was made to highlight the connection between the hallucinogen and indigenous cultures. Ayahuasca has a certain onomatopoeia.

Departure from fidelity does not always diminish verisimilitude. For example, Babenco does not follow the character development of Lewis Moon (Tom Berenger) laid out in the novel by Peter Matthiessen. [2] Moon is a modern American swashbuckler of white and Cheyenne ancestry. In a highly symbolic scene, he jumps out of a propeller plane with a parachute and glides over the Niaruna village deep in the primary forest. His reception by the tribe does not follow the book. Babenco explains his reasons for not following the book for an interview published in *Cineaste*:

My more critical approach begins [when] Moon first arrives at the Indian village, and he’s not adored or treated as a king or a god. He’s treated like a regular man. In the novel when he first arrives at the Indian village, he assumes a superior social position. In my *mise-en-scène* of this arrival, and of all his time at the Indian village, he is no more important than any one else in the village... [3]

Although the Niaruna think Moon may be the celestial spirit Kisu, disagreement exists among them. The idea of changing this aspect of the novel-to-film adaptation did not originate in Babenco but in the indigenous actors themselves.

Everything the Indians say or do in the movie, by the way, was suggested by them. They told me how they would react if a white man dropped from the sky into their village. They did the *mise-en-scène*. I just took my scissors and shaped it, but the inner concept, the core of everything, came from workshops we did with them. [4]

Babenco seems overly generous in giving credit to the indigenous actors. There is clearly a plot development in *At Play* upon which the indigenous actors may have added a subtext or two. That plot reflects Babenco’s interpretation about the economic development of the Amazon. In the

same interview with *Cineaste*, he goes on to cite how, since World War II, transnational interests have financed the obliteration of indigenous cultures and the deforestation of their land. The comment can be classified as the Political Ecology answer to Question # 1 of Table 3.1 (“What main, single factor is responsible for deforestation?”) However, *At Play* also hybridizes causations from the other schools of thought. In an early scene in the riverside port, the customs official is talking to the missionaries and gazes out the window, pointing to poor families waiting at the dockside, en route to the forest edge, to slash and burn. Referring to the indigenous tribes, he says “It’s inhumane for them to have all this land.” The remark is the answer to Question # 1 given by The Impoverishment School, viz., “The growing number of poor.” When the young missionary Martin Quarrier (Aidan Quinn) is incredulous that the Niaruna could be pushed out of their entitled land, the older missionary Leslie Huben (John Lithgow) says “here in the jungle, there is no law.” The remark is the Neoclassical answer to Question #1: open access *de facto*. This plurality of answers in rapid succession shows us the plurality of viewpoints in weighing the variables of deforestation. From the resulting confusion, one can deduce the Ecocritical position that the science of deforestation is too unsettled to solve the problem of deforestation.

At Play has all the elements to make it a *blockbuster* movie: stars galore, breathtaking scenery, humor and irony as well as ethos and pathos. It is obviously not a chintzy production, costing in fact some \$36 million. So, why was “the box office response...disappointing?” [5] Many of the bad reviews blame the pacing of the film which has much to do with its length (3 hours and 5 minutes). Others find the main characters horribly miscast. Less commented is the irreverent nature of the film. The Gospel turns out to have been bad news for all the characters involved. Such a message alienates audiences of a religious bent as well as those who are secular but nationalistic, making uneasy European-descended audiences in the former colonies. In the language of psychology, the Bad News message is dissonant with cognitions learned since primary school. For example, non-religious Americans cherish the notion that the first pilgrims sat down with the Indians to break bread. The memory is institutionalized in Thanksgiving, arguably the country’s most celebrated holiday. In *At Play*, the first contact between the tribesmen and the missionaries is based on bribes and deception, and is a prelude to the genocide

that will come. Babenco tells *Cineaste*: “We grew up with the idea that missionaries were abnegating souls who were sacrificing themselves by going to live in distant places, putting their families in very austere conditions, and dedicating their lives to God. Fuck that!” [6]

In questioning the role of the missionaries, *At Play*, like the texts chosen in the ecocritical package, goes beyond Table 3.1 and suggests causations that are not readily apparent in the established schools of deforestation. Where in the table is *the imposition of mental illness from the Center onto the Periphery*? Such a question is not irreverent. In *The Demon-Haunted World*, Carl Sagan writes “Demonology is today still part and parcel of many earnest faiths” and in *Consilience*, E.O. Wilson notes “[a]t least one form of brain disorder is associated with hyperreligiosity, in which cosmic significance is given to almost everything, including trivial everyday events.” [7] Mental illness looms large in the conversations among the missionaries and particularly, through the persona of Hazel (Kathy Bates). She is the overweight and jealous wife of Martin. Both are in their late thirties and arrive with their son, Billy. He is about six years of age, blonde and blue-eyed. His chubbiness makes him cute. The young actor is joyful and giggles. Billy integrates with the indigenous children and happily sheds his clothes as they play. His adaptability is in sharp contrast to Hazel who forces the indigenous women to harness their breasts in bras as do the women in her home state of South Dakota.

To varying degrees, obsession with sex drives the behavior of all the missionaries. This is epitomized in an altercation between Leslie (John Lithgow) and his attractive wife Andy (Daryl Hannah). In Leslie’s mind, Lewis Moon is an attractive American man disguised in indigenous garb (if one could call a dental-floss genital support “garb”). When Leslie discovers that his wife, Andy, has been in close contact with Lewis, he blows up

Leslie: “How could you look at him when he was naked?”

Andy: “Why is a white man’s nakedness sinful to look upon when a red man’s nakedness is not?”

Leslie: “It’s the intent. It’s the lustful intent. Go to your room!”

The psychology of the scene coheres with evolutionary explanations of mating behaviour and male dominance. Lewis Moon as a naked Indian is not a contender for Andy; Lewis Moon as a naked white man is. Classification and misclassification of contenders by dominant males is a structure as old as literature itself. In *Don Quixote*, the first printed novel of all literature, “The Story of the Captive” builds on a similar misclassification. [8]

Just as Babenco lets the native Amazonians interpret their roles in the *mise-en-scène* in the Niaruna village, he seems to have given similar latitude to the American actors. Kathy Bates has recycled a phrase or two from her crazed persona in *Misery* (e.g., the intonation of “Mr.” to express disapproval). Hazel is also bipolar. At times, one is not sure whether she is being ironic or whether she has finally broken with reality. Looking at the wet greenness all around her, she wonders aloud “Are we in hell but don’t know it?” A full break comes with the death of Billy, her “only begotten son.” In one of the most memorable performances of the movie, Hazel “goes native” or what she thinks it means “to go native.” Scantly covered with vines and mud, she trots in circles and chants. While the death of Billy has pushed Hazel over the edge, the death has made her husband, Martin, all the more lucid. As Billy lays dying of blackwater fever, Martin accepts the hopeless prognosis of the disease and does not attempt any heroic effort that would only cause further pain to the dying boy. Is this verisimilar? Hazel’s utter disbelief at Martin’s acceptance is highly verisimilar. Martin’s lack of denial only seems verisimilar because one senses that Martin has experienced a true catharsis.

The deathbed scene of the feverish Billy may be elucidated through evolutionary psychology. Before the advent of vaccinations and antibiotics in the twentieth century, the death of a child from a communicable disease was a common occurrence. Over thousands of generations, the evolutionist suspects that a repertoire of behaviors was selected to cope with the death of a child so that the adult relatives can carry on vis-à-vis the other children whose high metabolism cannot afford any lapse of despondency. After decades of participatory observation, Nancy Shepherd-Hughes suggests something similar in *Death Without Weeping: The Violence of Everyday Life in Brazil*. [9] Her point is that poverty-stricken mothers must make life-and-death choices with no

visible remorse, for the sake of the survival of the other children. Psychologically, the mothers are resilient. However, what happens when the dying child is an only child? The absence of other offspring can leave the melancholy unchecked until it reaches its full self-destructive expression in the parent. This happens with Hazel in *At Play*.

The poignancy of Billy's death is hardly new in the arts. It occupies the same role as does Eva's death in *Uncle Tom's Cabin*. Eva is also an only child, pure of heart, and harbors none of her mother's neuroses. She plays with Topsy as if the slave girl were her social equal, much like Billy plays with the indigenous boy of the same age. The use of an innocent's death as a vehicle to flesh out psychologies was also not original to Stowe. As long ago as 1937, Stowe biographer Catherine Gilbertson saw Eva's counterparts in a great deal of English literature

But Eva was not the peculiar creation of Mrs. Stowe. Said the Earl of Shaftesbury, 'Your character of Eva is true...I have...seen such myself in zeal, simplicity, and overflowing affection to God and man. It pleases God to show, every now and then, such specimens of his grace, and then remove them before they are tarnished by the world.' She appeared in a multitude of guises through nineteenth-century literature. Charles Dickens was devoted to her. Remember Tiny Tim and Little Nell and Little Dorrit and Paul Dombey and Agnes and Lucie Manette? But there were thousands of others, serene souls playing variations on Thirteenth Corinthians, figures ranging in age, dignity, and significance from Elsie Dinsmore through Lucy Gray to *Das Ewig Weibliche*...Perhaps they were the Romanticists' substitute for the Blessed Virgin of the Middle Ages, who had been lost in the late Renaissance. And what need of the human spirit evoked them in the nineteenth century? To label them sentimentality is to explain nothing. Latter-day feminists and post-war-intellectuals have done their best to make an end of them; yet they still hold the popular fancy. [10]

The gravesite of Billy is stark. The boy is wrapped only in his bed sheets and placed in a dirt hole. As Leslie officiates, he suddenly becomes aware of the presence of the Niaruna who are also mourning the loss with loud and gushing sobs. Opportunistically, Leslie seizes the moment

to proselytize. Realizing exactly what Leslie is up to, Martin lashes out and repudiates his faith. “God is not welcome to my son.” Such a catharsis is common in both literature and in life. Charles Darwin discarded religion for good after his 10 year old daughter, Annie, died of scarlet fever. [11]

The psychological journey of Martin is an ecocritical metaphor for why one should respect limits. Since boyhood he has been fascinated with indigenous cultures and the Amazon. The viewer gets the impression that Martin became a missionary as much to realize those boyhood dreams as to save the souls of the Niaruna. By the end of the movie, Martin discovers that Jesus has been understood by the Niaruna as Kisu, their own vengeful and wrathful spirit who has assumed the persona of Lewis Moon---the man Martin has come to despise. Unlike the other missionaries, Martin now sees religion from the viewpoint of the other.

As measured by the box office, *At Play* has not penetrated the social sphere. Nevertheless, one may hope that it may have dissuaded would-be missionaries from proselytizing in the Amazon. Alas, any such hope is misplaced. The reason why is driven home by an experiment conducted by an evangelical Christian. In “‘Evil’ Images at Play in the Fields of the Lord: Evangelicals and Representations of Sexuality in Contemporary Film,” Todd Rendelman analyzed the reaction of six middle-class European American evangelical Christians to a home screening of *At Play*. His findings are remarkable and we shall quote them at some length. Rendelman audio-taped the responses and concludes that “the evangelical engagement constructs a hierarchy of viewing priorities that privileges the presence of sex and nudity over all other narrative structures and consequences.” “The participants’ popular culture practices are inseparably tied to their social roles as parents, spouses, teachers, students, and pastors.” As an observatory participant, he analyzes sexuality and nudity because “their discussions of these themes repeatedly played a pivotal role in shaping their overall opinions of the film.” [12]

One cannot help but sense a certain disappointment that the evangelical audience did not engage in debating the moral issues raised in the film. What is the evangelical take on Lewis Moon’s

piercing observation: "If God made the Indians the way they are, then why change them?" Rather than being provoked, all six evangelical viewers could only obsess with sex and the nudity of the film.

Nicolas likens Andy's full-body nude scene to a *Playboy* centerfold. Her body is perfectly clean and peacefully poised against a tree as soft, nondiegetic music creates a likely environment for a forbidden kiss. Nicolas observes that '[t]here was no mud on Daryl Hannah,' which also contrasts with the Niarun, who wear body paint and are frequently depicted working or dancing in dirt. All of these distinctions lead Nicolas to conclude that the movie cynically 'changed genre' in an effort to create 'this little erotic, y'know, three-minute episode' that accentuates Hannah's shapely body as a sexual spectacle. [13]

Indeed, the evangelicals interviewed seem more obsessed about the sexual implications of the nudity than does the crazed Hazel in the film. Whereas Hazel lets Billy play in the nude, one female evangelical viewer told Rendelman: "Um, I think it's terrible that young children can be in movies where there's so much nakedness. So much personal nakedness. And nobody's caring. I mean, I'm thinking of my [twelve-year-old] son. Would I put him in a movie like this? And what does it do to a child to be in a movie where he runs around naked?" The evangelical objection to nudity is that it could arouse sexual desire and so, "avoiding such images is one way to fight increased temptation in their lives." [14] In studying Rendelman's analysis, one recalls the scene where Hazel stumbles upon Billy and his playmates watching the Niaruna couple on the verge of making love in a hammock. There is no hint of perversion or shame between the couple or voyeurism on the part of the children. Hazel disentangles the couple, reprimands Billy in the harshest terms as "demon-possessed," slaps the girl on the face, and hustles Billy away. One wonders: would these six evangelical viewers have reacted any differently?

Inadvertently, Rendelman has given a devastating critique of evangelical Christianity when he writes: "Overall, although the participants were offended by the film in several ways, they seemed to have stronger affective investments in their reactions to the film's nudity than the

movie's criticism of evangelical missions." [15] If Randelman's experiment stands up to repetition with a larger sample size (it's hard to draw statistical inferences from a sample size of six), then the result will be profound for ecocriticism. No work of art, no matter how well done, is likely to persuade missionaries not to venture into the Amazon. The intended audience will conflate nudity with sex and totally miss the polemic before them. Percepticide will triumph. Therefore, such works must be directed to the many who can influence South American governments to impose limits against the few who will not be persuaded to stay away.

As a final note, we must comment on the scenery. What sets this film apart are the panoramas. Seen on a big screen, one cannot help but sense wonder and awe. The beauty of the Angel's Falls and the expanse of Roraima are truly magnificent. The pan shot of the small plane flying over the treetops, casting its cross-shaped shadow, is a powerful and obvious metaphor. As far as the eye can see, there are no power lines or highways, much less cattle ranches or soya plantations. The scale of the pristine land is a visual testimony to the urgency of limits. E.O. Wilson jokes in *The Future of Life* that the audiovisuals we make will be a cruel reminder of what we have so foolishly destroyed. [16] We can only hope that *At Play* never achieves such a dubious distinction.



Chapter Nine

By bye Brazil

The film *Bye bye Brazil* takes the viewer on a spectacular 10,000-mile road trip. The means of transportation is a dilapidated truck called the Caravan Rolidei (pronounced in Portuguese as “Holiday”) driven by Lord Gypsy, a showman *par excellence*. The star actress and sometime sex worker is the versatile Salomé and the back-up attraction is a silent black muscle man named Swallow. The musical accompaniment is a young couple, Ciço and Dasdô: he with an accordion and she, a triangle, accentuated by her advanced pregnancy. Each character is the focus in a series of vignettes which taken as a whole represent a system in upheaval---the culture, the economy, and the landscape---at a critical moment in modern Brazilian history. Just as there is no one thing to which we are bidding goodbye, there is also no one thing that is driving the upheaval. Instead, it is a confluence of variables which, in economic terminology, can be identified as globalization: “[the] accelerating rate...of economic interaction between people of different countries, leading to a qualitative shift in the relationship between nation-states and national economies.” [1]

The film begins *media res* with the arrival of the Caravan Rolidei in a riverside port in the impoverished backlands of northeastern Brazil. Lord Gypsy sports a t-shirt which reads COPACABANA but by his general demeanor, one suspects that the shirt is a marketing gimmick to lend panache to the show. One wonders whether Lord Gypsy has

ever even been to Rio much less hail from what is fondly known as “the marvelous city.” In the same vein, Salomé assumes an international persona. Queen of Rhumba and princess of the Caribbean, she uses some pat phrases which quickly exhausts her Spanish and shifts to, what Ciço calls, “Brazilian.” The origins of Swallow are likewise enigmatic and no one can be identified as originating from any where. Life is a series of movings on.

To fully appreciate *Bye bye Brazil* as an allegory for globalization, one must put the film into historical context. Some statistics and dates will serve us well. [2] Globalization, in the modern economic sense of the word, began in Brazil around 1960 as the country embarked on a rapid industrialization centered on automobile manufacture. Volkswagen, Fiat, and General Motors set up shop as their home markets had become saturated. From an investment viewpoint, Brazil seemed an ideal location. The infrastructure was sufficiently good, skilled labor, abundant, and the national policy of “import substitution” guaranteed that car manufacture would be profitable. By 1971, foreign firms were employing 80,000 workers in assembly (President Lula da Silva being one of them), another 2,000 in automobile parts, and 200,000 in related goods and services, from steel production to highway construction. Car manufacture, once a negligible contribution to the economy had become a source of well-paying jobs and a significant share of Gross National Product. [3]

Cars need highways and their construction, like the manufacture of cars, was driven by external events. The causation runs like this: price-fixing by the newly formed Organization of Petroleum Exporting Countries (OPEC) in the 1960s resulted in windfall profits which outstripped domestic investment opportunities in those OPEC countries. The supply of money (OPEC countries) would satisfy the demand for investment (developing countries like Brazil) through the international banking system. Governments contracted loans which could be invested in mega-projects: dams, highways, and mineral extraction. In the case of Brazil, the liquidity allowed the dictator Emilio Garrastazu Médici (1969-1974) to realize the nationalistic dream of a Transamazonic Highway. “Capitalists entrepreneurs” were crowding out traditional and indigenous communities

(answer from Political Ecology to Question #2 of Table 3.1 “Who is the principal deforestation agent?”). However, other causal mechanisms were also present and prominent. The TransAmazonic highway was the heart and symbol of the Plan of National Integration, which would ostensibly respond to the plight of the impoverished rural communities (Impoverishment School), while shoring up property claims to a sparsely populated interior (Neoclassical School). Sound bytes conveyed the official policy: “homens sem terra para terra sem homens” (“men without land for land without men”) as well as “integrar para nao entregar!” (“bring the Amazon into Brazil, so as not to surrender it!”). [4]

The ideology to conquer the Amazon and achieve development defines the political context of *Bye bye Brazil*. The transformation of the economy is accompanied by an even more accelerated transformation of the culture. Mass communication is key to understanding the speed of change and some simple statistics would also serve us well. In 1960 there were 760,000 TVs in all of Brazil but by 1970 the number had reached 5 million. In the next ten years, that number would quadruple to 20 million. Satellite transmission of standardized programs were broadcast from just two cities, São Paulo and Rio. [5]

The pernicious role of television can be found in almost all of the vignettes in *Bye bye Brazil*. Lord Gypsy hates TV because TV competes with the Caravan Rolidei. We see this in an early scene where a whole town is assembled in the square to watch a 20” inch Black & White TV screen, encased in a cement block. The neoclassical economist would deduce from the vault-like encasing that capital (viz., the TV) was precious and displacing labor (viz., the Caravan Rolidei) as capital invariably does: tough luck for the troupe but good luck for the general welfare of the consumer. The ecocritic would not be so easily convinced. Are live entertainment and TV really substitutes? The scene demonstrates that the TV is not providing any true entertainment as it is woefully undersized for the viewing audience which is probably a hundred people or more. The sound projection is so distorted as to be irksome and most of the viewers are too distant from the screen to work out the images. So why are they watching? The economist will

bow out of such a discussion, claiming that the formation of preferences is beyond the domain of economic theory. The ecocritic will step in and analyze how globalization transforms preferences. Film critics Robert Stam, João Luz Vieira, and Ismail Xavier, remark that the scene “suggests (in an analysis of the Frankfurt School depictions of the narcoleptic audience) [that television] has inherited the ideological role of religion as mass opiate.” [6] The elevated status of the TV is worthy of an altar and Carlos Diegues, the director, explains its origins:

One day, we returned to the tiny village (five thousand inhabitants), where we were staying. I was completely tired and [exhausted], but my curiosity was aroused when I saw a strange blue light in the village square. It was a television screen and the people---the sugarcane cutter, the [public clerk], etc, were watching a program from Rio that featured elegantly dressed people with modern cars: the emblem of consumerism. I was completely amazed and felt I had to film it. This was the first image of *Bye-Bye [Brazil]*, in 1972. [7]

Diegues makes the most of the metaphor by choosing adroitly what is being watched. The ecocritic notes that the programming is completely devoid of the place and circumstances of the viewers. It is the material fantasy and over-the-top melodrama of a Carioca soap opera, which, not surprisingly, has an English title “Dancin’ Days.” The cultural colonialism emanating from the business centers of Southern Brazil is a shell for the cultural colonialism emanating from their counterparts in the United States. Lord Gypsy is disgusted and, more importantly, energized. He and Salomé do some magic and sabotage their competition by exploding the TV. One can classify this act of rebellion as symbolic of the conflicts engendered by globalization. It is an unmistakable metaphor for resistance.

Economically pushed out of the Northeast and onto the TransAmazonian Highway, the subsequent vignettes of *Bye bye Brazil* portray the disfiguration of the land and its people. Where previous scenes were largely set at night, these scenes are shot in bright daylight. A sequence shows gargantuan earth-moving equipment, burnt tree stumps, and a glary landscape in a blinding sun. The stillness of a smashed armadillo is the only

wildlife seen. The biophilia is palpable in the remorse evoked by the sheer scale of the destruction. In the back of the Caravan, Dasdô gives birth to a girl who is named Altamira, after the Amazonian town which is now the Caravan's destination. How was the destination chosen? On the casual recommendation of a truck driver who remarks that times are good in Altamira----that Altamira is the place to be. Like a Russian Matrioska doll, we have a metaphor inside a metaphor. If the whole road trip is an allegory for the economic development of Brazil, one sees that destinations such as five-year plans are also based on misplaced hope and misinformation. That message resonates with the Ecocritical School of Deforestation which finds any cost-benefit analysis in the Amazon hopelessly beyond our lens of resolution and fundamentally dishonest (Question #3 and 4 of Table 3.1). There are many ways to interpret the birth of Altamira amidst the destruction. An optimist may say it is a metaphor for renewal, a pessimist for endurance, and a realist for the crime being committed against the next generation of Brazilians through deforestation. [8]

The Caravan Rolidei makes a rest stop in a most unattractive place: the contouring of the denuded hills has formed stagnant pools of black water amidst dead tree stumps. The troupe goes down the steep road embankment and Ciço decides to refresh himself by taking a dip. At this moment, members of the indigenous Cruari tribe appear from the road embankment above. Ciço, barely having entered the water, is stung by something and collapses in crippling pain. The young chief diagnoses the situation as the sting of a poisonous manta ray and offers the traditional remedy----dousing the wound in urine. Lord Gypsy quickly unzips and Ciço is startled in disbelief. The indignity of the scene provides much comic relief given the dire circumstances of everyone present.

The camera carefully registers the image of each individual Cruari. The clothing is predominantly western with a few flourishes of indigenous garb which make for some bizarre ensembles. The grandmother balances a radio on her shoulder and listens to what is passing for news in the Amazon: a lead-in for selling barbed wire. Again, the Matrioshka metaphor: nothing symbolizes globalized capitalism better than does barbed wire. Barbed wire is a physical means to enclose the commons and achieve exactly what

the Neoclassical School recommends as the most promising policy to ameliorate deforestation (Question # 6 of Table 3.1): “Establish private and secure property rights.”

In keeping with our interpretation of an allegory, it also comes as no surprise that the consumer wants are engineered abroad. The children play not with sticks and stones but with a crudely carved wooden TV and airplane. And everyone seems to be dreaming of flying. It is no small irony that the chief is dressed in orange overalls commissioned by the Department of Highways, the acronym of which is DNER in Portuguese. The letters DNER are emblazoned on his back as if he were a branded slave. The irony is pure Political Ecology: capitalist investors and entrepreneurs have co-opted the government to open the Amazon and have become the driving agents of deforestation (Questions #1-3 in Table 3.1). However, the Cruari are not hapless victims. The Chief asks for a ride on to Altamira and explains to Lord Gypsy that he wishes to “pacify the white people.” The next frame shows the Caravan rolling down the Transamazonian Highway with the tribe in the back of truck. One hears the sounds of the jungle which are drowned out by the grandmother’s radio blaring The Everly Brothers’s version of the song:

Bye bye love

Bye bye, happiness

Hello, loneliness

I think I’m a-gonna cry-y.

Once in the city of Altamira, the Cruari are figuratively enslaved by the trappings of modernity. In ramshackle quarters, the children are hypnotized by “Dancin’ Days,” the same soap opera that was playing when Lord Gypsy and Salomé blew up the television in the town square in the Northeastern backlands. The spectator is reminded just how far the tentacles of globalization reach. [9] Like the previous scene, the grandmother never seems to take the radio off her shoulder. Consumption is addictive in all the senses. To drive that inference home, she tastes Coca-Cola, probably for the first time, and becomes giddy with pleasure. Such vicious circles of transculturation are quintessentially the Impoverishment School. Meanwhile, the men of the tribe are being recruited to work on a gigantic floating paper mill, the brainchild of the American industrial magnate Daniel K. Ludwig, who hauled the monstrosity from Japan in 1978. [10] Not only have the

indigenous people been robbed of their lands, and the land of its trees, but the men will now be defrauded of the value of their labor. Without any sense of impropriety, the job recruiter explains that “the wages are less for Indians.” The mere existence of recruiters is evidence of labor scarcity and corresponds to the interpretation of Political Ecology (Question #4 of Table 3.1) which holds that low populations can drive deforestation because logging requires less labor than would agriculture or industry.

The final scene of *Bye bye Brazil* is bittersweet. It takes place outside a nightclub in an unplanned neighborhood on the periphery of the ultra-planned capital, Brasilia. The baby Altamira is now five years old, which allows the spectator to deduce that five years have passed since the troupe disbanded. According to the marquis, Ciço has become “The most famous accordionist on the High Plains of Brasilia.” Several closed circuit TVs encircle the stage and the camera is trained on Ciço. On the floor, the patrons are dancing the folksy *forró*.

Perhaps one can interpret the string of TVs as a hopeful sign that Ciço has gained control over external threats and uses technology to promote both himself and what is Brazilian, in this case *forró*. His small family seems relatively secure in a material sense. As Ciço plays the accordion on stage, his ears prick up trying to make out what he hears from a loudspeaker outside. It is the Caravan Rolidei. His expression is not only of surprise but of “saudade,” that untranslatable Portuguese word which roughly means “nostalgia” but is orders of magnitude more intense. Like Ciço and Dasdô, Lord Gypsy and Salomé have prospered in these intervening years. Globalization has afforded the Caravan Rolidei the opportunity of contraband, which ultimately financed a new truck, bedecked with neon lights. Its solid appearance is the exact opposite of the dilapidated heap which had rambled down the TransAmazonic Highway some five years earlier. Lord Gypsy does his magic and a panel door slides open with three scantily dressed go-go dancers, doing a Cuban conga. Ironically, the technology that threatened the Caravan Rolidei in the first scene has now been selectively incorporated into the Caravan by the last scene. After all these years, why are Lord Gypsy and Salomé at the door of Ciço and Dasdô?

One suspects that the *saudade* of Lord Gypsy and Salomé is a longing for old emotions which have also been transformed in the intervening years. This seems ominous for Dasdô inasmuch as the spectator may recall an early scene in which Ciço and Salomé have a tryst in Salomé's tent. In the scene, Dasdô is about eight months pregnant and stoically waits outside. In a later scene, some months after the birth of Altamira, Ciço declares his love for Salomé who holds him crying in her lap as a mother would an infant son. Looking off, she marvels that all her life she had been looking for love and when it finally comes, she cannot accept it.

Nostalgia for such past emotions does not eclipse a rational decision by the now more mature Ciço. He and Dasdô are integrated into a different system and joining the Caravan Rolidei would not be the same decision as it was in the backlands of the Northeast. Lord Gypsy and Salomé almost expect that their invitation will be declined. They bid farewell, saying they are headed to Rondônia, explaining that Rondônia is now the place to be. Salomé's eyes dilate as she tells Ciço with dramatic flare that they will entertain the Indians who have never seen anything of the likes of the Caravan Rolidei. The scene takes place at night. The solid new truck pulls out and a new roadtrip has begun. The sun rises to their left.

The ending is remarkable. Either Carlos Diegues has made a huge technical error or has deliberately inserted an enigma that the viewer must contemplate long after the film ends. Rondônia is to the west of Brasilia and the sun would rise behind the Caravan Rolidei, not perpendicular to it. The Caravan is headed south, not west. Lord Gypsy and Salomé are going in the wrong direction as he looks ahead and exclaims "Rondônia!" One can interpret the mistake as a metaphor for the economic development of Brazil. Uncannily, the film debuted in 1980 at the end of the "economic miracle" and the beginning of the "lost decade," just as Rondônia was opening up to mass migration and massive deforestation. One suspects that driving perpendicular to a rising sun is no mistake at all. Diegues is a very capable director and, we believe, meant for the audience to deduce that the Caravan, like the country, is going in the wrong direction. Evidence supporting this hypothesis comes in the next and final frame which is a dedication "to the Brazilian

people of the 21st century.” Dedications are usually made to a person who has inspired the work and/or is deserving of admiration. Thinking about this film now in the 21st century, we ask ourselves: What does it mean that Carlos Diegues dedicated the film to future Brazilians? What does it mean that he put that dedication at the end of the film and not the beginning? We believe the answer is in the allegory. Having gone down the wrong road of globalization with all its attendant horrors, the challenge that Brazilians now face is what inspired Carlos Diegues in 1970s. He puts the dedication at the end so that the audience can contemplate the many meanings of the Caravan Rolidei.

In the context of ecocriticism, the central message of *Bye bye Brazil* is that the best path would have been to have left the Amazon intact. Since the film’s debut, the devastation has been nothing less than a holocaust for the once pristine Rondônia. Nevertheless, there still are rainforests in other places in the Amazon which have not yet been fragmented by highways and torched by colonists. The Instituto Socioambiental do Brasil (Socio-environmental Institute of Brazil) maintains a website which is a treasure trove about almost every aspect of the advancing destruction. Among its intralinks are maps which detail the locations of the roads, the tribes, the deforestation, and so on. Comparing the maps of the indigenous settlements with those of the roads, one sees that the brightest future for the survival of both indigenous communities and pristine forests is distance from a highway (e.g., Northwestern corner of the country in the state of Amazonas). Another hopeful statistic is that 42 indigenous communities have not suffered contact with the West. They are not yet clothed in orange overalls, not yet rocking to The Everly Brothers, and not yet titillated by the charms of Salomé. This lack of contact is not because foreign investors and Brazilian officials have embraced human rights (much less the right of others species to continue evolving in their communities). Rather, it is because the Amazon is so vast that “economic development” has not yet reached all the way into the interior. But it’s coming fast. Given current trends, the metaphorical Caravan Rolidei will get deep into the interior before another generation lapses. As the government contemplates new roads in the Amazon, the film *Bye bye Brazil* is painfully relevant to the ecocritical enterprise.



Chapter Ten

Being Part of The Solution

If you're not part of the solution, you're part of the problem. That 1960s adage expresses well what economists have long suppressed: the solution to environmental problems is not something that cuts through time and space like a physical law. [1] It is deeply and inextricably personal. One must be part of the solution for it to truly be a solution. The three established schools of deforestation present solutions as if the trajectories of the advocates had nothing to do with the solution. Just as the Second Law of Thermodynamics can stand independent of Sadi Carnot, Rudolph Clausius, Josiah Willard Gibbs, Ludwig Boltzmann, and James Clerk Maxwell, economists seem to think that their ephemeral theories are also independent of themselves. We will conclude this book by showing that the Second Law of Thermodynamics, also known as the Entropy Law, justifies a personal approach. So, we turn inward and examine a few select threads from our own trajectories to understand how we got to where we are: two professors, one from foreign languages, the other, economics, trying to stop Amazonian deforestation by writing about ecocriticism.

*Ugh---spare us the "wesearch"---*the cynic sneers. Unfortunately, we cannot. Ecocriticism examines how art motivates the audience to embrace limits that will be binding over generations. Because each member of that audience comes to a work of art with his and her own trajectory, the approach cannot be anything but deeply and inextricably personal. The remarkable thing about ecocriticism is that a variety of trajectories can converge on

the same solution: limits. Knowing the solution is not enough. One must *internalize* it, in the psychological sense of that word. The solution must be part of the person.

Entropy

We will begin with Joseph as a five-year old in Plainfield, New Jersey. Long before *Sophie's Choice* was penned, the mother of Joseph's best friend hanged herself in the garage. The boys were at school and the husband at work. Dorit had survived the concentration camps but apparently not the trauma. A couple of years later, the Vogels moved to the adjacent town and, coincidentally, another survivor moved next door. Whatever is the antonym of depression, that word describes Steve. Joseph's mother thought that Steve's zest for life sprung from the horrors suffered as an adolescent in his native Poland. A cantor in the synagogue, he would practice in his backyard. The sheer joy of his song filled the adjoining hearts and minds. Forty-five years later, as Joseph ponders the holocaust sweeping the Amazon, he thinks of Dorit and Steve. Humanity need not commit suicide for what has been lost. It can rejoice, like never before, for the life that still remains.

Enough of Joseph's thread, let's now pull Camilo's. Born in 1968 in the interior of Brazil, Camilo is the fifth of eight children. As a child, he remembers how the "economic miracle" trickled down to office workers like his father, in simple things like Christmas presents for the children of the employees. By the time Camilo came of age, the party was over. The lost decade of the 1980s had begun. The generals handed the clean-up to a succession of civilian governments. Austerity was institutionalized. Seeing hunger is a great teacher and experiencing it, graduation day. For Camilo, the lesson learned is that food must come first. There are no tradeoffs. For the presidents that followed the dictators, the lesson learned was raw opportunism. Rather than solve the problem of hunger, they appropriated it as the rationale for "economic development." A false dilemma was trumpeted: food consumption through agricultural expansion in the Amazon versus conservation of the birds and the butterflies for the gringos. [2] It never mattered that hunger had always been a question of distribution in Brazil and not

production; rhetorically, the false dilemma worked well while insidiously giving those same governments an incentive *not* to solve the problem. Only recently has a Brazilian president refrained from such demagoguery. Upon taking office, President Lula da Silva launched the program *Fome Zero* (Zero Hunger) and achieved overnight what his predecessors purposefully failed to do year after year: a sincere and unwavering commitment to food security. *Fome Zero* puts Lula on the side of humanity and, therefore, on the side of history. Without food first, Camilo feels deeply, the discussion of this book would be suspect by the millions who have earned their doctorates in hunger. Nevertheless, Lula risks his rightful place in history by not rebuking *Avança Brasil* and other megaprojects that doom the indigenous peoples of the Amazon along with the birds and the butterflies.

From our distinct personal trajectories, we ask the heads of state in the rich countries of the Organisation of Economic Co-operation and Development (OECD) as well as in the poor countries of the Amazon basin: On which side of natural history do you stand?

E.O. Wilson has heard it all before. He admits to battle fatigue. [3] He anticipates the response of a public grown weary by such appeals. What has the future ever done for us? We answer the question with another that is more enigmatic. What should we ask the future to do? If Dorit and Steve were reincarnated, what could they ask the future to do for them? Anyone like Joseph who has been weaned on World War II movies knows the answer by heart: “Never Again!” [4] Inside the movie house, the mnemonic is inspirational; outside, it is just two meaningless words. Indeed, ever since The Holocaust, the crimes against humanity have been perpetrated without so much as a hitch. Working backwards from this new millennium, we have Darfur, Sierra Leone, Liberia, Chechnya, Rwanda, the former Yugoslavia and we’re still just in the mid-1990s. Perhaps The International Criminal Court in The Hague will deter future genocides, but its jurisdiction does not include non-humans. *Le droit d’ingérance* is human bound. Mass extinction *as a crime* has never been on the table at the eight Conferences of the Parties to United Nations Convention on Biological Diversity. By the time an international legal

mechanism is crafted, adopted, and enforced, mass extinction will have become a *fait accompli*.

Invigorated, we know what must be done. The future must be empowered to intervene on its own behalf. Wilson is right. Short of nuclear war, mass extinction is the crime they are least likely to forgive.

The cynic rolls his eyes. He smacks his lips. *Is some cyborg from the future going to re-configure the present? Nudge, nudge. Sort of like Arnold Schwarzenegger in The Terminator?* We respond deadpan. The movie is a thermodynamically impossible story but, recycling the metaphor of Picasso, it “is the lie that helps us see the truth.” And get your movie facts straight! The Terminator was a robot, not a cyborg. The plot elucidates how robotic domination in the future hinges upon obliterating a very specific bifurcation point in the present: a boy who grows up to lead the resistance. As an adult he will lead an insurgency to save humanity from extinction. We humans must be like Arnold-the-robot. We must track down the bifurcations points of today so that a Red Desert does not emerge in the Amazon of tomorrow. Track them down, not to neutralize them mercilessly as does Arnold, but to persuade them passionately that we must follow another path.

The bifurcation points are hardly anonymous. Indeed, they could not be more prominent. They are the individuals in whom power is vested, viz., presidents and prime ministers. We list them in Appendices II and III. The cynic can no longer hold his tongue. He seems to be thrashing in his seat. We think he is going apoplectic. He flips the pages to the appendices and blurts out: *Puppets! Presidents, PUPPETS. Prime ministers, PUPPETS. Puppets, PUPPETS. They are all just puppets. Not even well sewn puppets. Cheap, nasty, polyester puppets. Puppets made in some Third World factory by child labor.* [5]

We understand the frustration. Mixing metaphors, we reply: every puppeteer fears a Frankenstein.

Evolution as an entropy-driven process [6]

The behavior of our hominid ancestors emerged to dissipate the energy gradients of East Africa. That gradient consisted of large game and scattered fruit. The more successfully that ancestor dissipated the gradient, the more offspring survived to continue dissipating it. Evolution can be mathematically modeled as an entropy-driven process where the number of offspring is a lagging indicator of entropic success. [7] The type of social organization among the hominids reflected the strategy most effective in dissipating those resources. A contemporary example may afford illustration. On that same savannah, the lions organize in prides and just beyond, in the closed forests, the tigers lead solitary existences. A pride of tigers would alert its prey which would camouflage, almost effortlessly, among the foliage. Similarly, a solitary lioness would bring down few of the swift and agile gazelles. Mutant genes---the mutations themselves the outcome of entropy--emerged over thousands of generations which enabled distinct behaviors for distinct energy gradients. We are sorry to inform The Heritage Foundation that our hominid ancestors were more like the socialist lions than the neoliberal tigers. Central to their social organization are dominance hierarchies. Status-seeking among humans can be understood as a similar yearning to position oneself within the group.

Stephen Jay Gould spins. The grave rocks. *Just-so story! Determinism! S-o-c-i-o-b-i-o-l-o-g-y!* [8] But his rapt audience has also dissipated. Not even our cynic hears him. Those once effective denunciations are now ignored as code words for exceptionalism. [9] An avalanche of evidence has been accumulating---some of it even during the frenzied pitch of the *just-so* mania---which supports a genetic basis to specific types of behavior. [10] All bets are on that a genetic basis to status will be discovered. Even the behaviorists who eschew the question of ultimate cause, have long identified status as a primary reinforcer, putting it right up there with sex, shelter, hunger and thirst. Now for the transdisciplinary approach: the ANTI-ECONOMICS 101. At some scale of wealth, people no longer work to satisfy sex, shelter, hunger and thirst. They are materially satiated. They work for access to venues that signal status. Unlike the other basic drives (sex, etc), status cannot be easily satiated. Its nature is zero-sum; what one gains, another must lose. Competition

means that the criteria for status are constantly ratcheted up. Hence, people sense *ennui* with every anti-climatic achievement.

Satiated with material goods, how do the well-off ever achieve status? It is a conundrum most people never solve, try as they will. Many deny that they are indeed satiated and foolishly attempt an arms race in material goods as a proxy for status. The pathology has been cleverly named *affluenza*. [11] Bigger and more expensive cars, bigger and more expensive houses, bigger and more expensive everything (except electronics which goes in the opposite direction---smaller and cheaper). The McMansions of America are testimony to the poverty of imagination. Within those gated communities and inside those gated minds, lurks disappointment. Alas, too many people have a similar big house with the same circular driveway and the same faux gables. True status can only be had when a limit *naturally* exists over the possibilities of attaining it. To illustrate our point, we return to the movies, the lies that help us see the truth. One of the most verisimilar lines in *The House of the Spirits* is when the clairvoyant Clara (played by Meryl Streep) dismisses the political aspirations of Estefan, her aristocratic husband (played by Jeremy Irons): “Politicians are just bandits and criminals.” Her words go unattended. Estefan fantasizes about the status waiting to be had in the senate.

It is predictable that millionaires (almost every member of the U.S. Congress) and billionaires or their spouses (Ross Perot, Michael Bloomberg and John Kerry) will seek the highest political office. Many have spent large chunks of their hard won fortunes on campaigning (O.K. John Kerry is a bad example). Not even the candidates themselves portray the campaign contributions as acts of altruism. What they get out of an election, money has indeed bought. There can only be one mayor, one governor, one president or prime minister. The limit is binding which makes true status attainable.

Once the election is won, stolen, or bought, what then? What motivates those who have reached the top rung? We suggest legacy. Legacy is status in perpetuity. Richard Nixon resigned rather than being removed from office and, because of legacy, spent his remaining years writing memoirs. [12] The motive was to rehabilitate himself in the

annals of history. Forget the defoliant Agent Orange, forget the millions of civilian deaths in Viet Nam and forget Cambodia too; remember the opening of China, remember the establishment of Environmental Protection Agency, remember revenue-sharing with the States (later dismantled by Ronald Reagan). Lest our readers from the right end of the political spectrum accuse us of bias, we turn to the left. At the outset of his revolution, Fidel Castro would excuse the crimes to come. "Condemn me. It does not matter. History will absolve me." [13] So, forget the forced labor camps, forget the prisoners denied *habeas corpus*, and forget nearly fifty years of muted expression in every aspect of life; remember the literacy campaigns, remember universal health care, and remember food security. Heads of state want to be remembered for having changed the system in a positive way, even despite the multiple crimes they have committed against humanity.

So let's get negative in our age of mass extinction. Our model of political leadership can be reduced to three key axioms about the men and women at the top of the pecking order.

They

- (1) have clawed, cheated, or bought their way there;
- (2) were always driven by a quest for status which, once attained, morphed into a desire for legacy
- (3) are now hostage to the Faustian deals made along the way.

Our model seems to augur environmental collapse, but a way out exists and it is in plain view. We must convince heads of state that they will be held accountable in the memory of tomorrow. *J'accuse*. The legacy they seek will boomerang. *J'accuse*. History will not absolve them, it will condemn them. *J'ACCUSE*. Even the puppets have the power to end the ecological holocaust. All of them are bifurcation points. Emotions must start to stir. Mixing metaphors, Frankenstein can only cheat the Oracle of Delphi by cutting the strings.

The deductions above may seem the peculiar product of our own trajectories, our own temperaments. [14] The power of ecocriticism lies in the convergence of other trajectories, other temperaments. Writing about ecocriticism, Richard Kerridge concludes

...capitalism is subject not to the full range of political and economic forces but to the free consciences of individuals at the top. These, the consciences of secretly tormented industrialists, are the chink in the system's armour, through which environmentalism can penetrate to the human, responsive, emotional core of an apparently hard and impersonal system. The struggle of the environmentalist thus becomes an effort to reach that center, to fight through the outer layers and touch the system's heart. [15]

Sorry Al: It's Legacy in the Balance

The immediate response is a shrug of the shoulders. *Who? Us?* A disingenuous smile. *We have no such power. The inflection dips. The presidential palace is little more than a bully pulpit.* The table turns. *Have you been to the Amazon?* The brow knits. *You can no more stop the tide of humanity than you can stop the flow of the river.* The chin, ever so slightly, lifts. *The destruction, it's inevitable; you gotta be a bit more philosophical about these things.* The back stiffens. *Next question!*

George W. Bush confirms our model of political leadership. His decision to go to war in Iraq was, well, *his* decision. The events leading up to the invasion in March 2003 left him with many alternatives. As a bifurcation point, it was *Damn the experts, speed those torpedoes ahead!* Colin (glad-I-resigned) Powell told his President as much in the famous Pottery Barn sound byte: *you break it, you own it.* Who ever said Republicans are racists? *Let's promote Condoleezza (mushroom-cloud) Rice to Secretary of State.*

It is hard to put a value on the lives lost but one can measure the other economic costs of the war. The Nobel Laureate Joseph E. Stiglitz and the Harvard budget expert Linda Bilmes estimate between one and two trillion dollars (10 raised to the 12th). Before the war, the White House economic advisor, Larry (Enron) Lindsey, had estimated 200 billion (10 raised to the 9th). Prof. Lindsey was off by three orders of magnitude (1000 fold). For not having been off by four (10,000 fold), he was given the bum's rush. [16] War on the cheap was the politically correct answer. The relevance for the economics of

deforestation is enormous. Momentous choices have little to do with dispassionate cost benefit analysis or even the tide of events; the bifurcation points will choose the calculation wanted to justify the decision---hence, our utter revulsion with the “Total Value of Biodiversity.”

Where Bush seems to prove our model wrong is legacy. He is perfectly content to saddle some future president with the quagmire he created. We could rally and say hey, two out of three ain't bad! But we are not ready to concede any point just yet. It would mean that Bush has transcended the human longing for status. We won't say it's impossible, just highly unlikely. W. is no Siddhartha. Another explanation exists that is consistent with our model as well as with the facts. Surrounded by “yes men” and tuned out of the news media, Bush *thinks* his legacy will be a positive one. *Newsweek* captured the percepticide of his presidency on the cover of its December 19, 2005 issue. Like John Travolta's TV debut in *The Boy in the Plastic Bubble* (1976), Bush seems trapped in some sort of polymer placenta.

The quest for status, coupled with percepticide, is not unique to Republicans. In 1992, with his eye on the presidential nomination, Senator Al Gore published *Earth in the Balance*. The title was wrong and unintentionally deceptive. The Earth is not in balance, legacies are! As Nicholas Georgescu-Roegen aptly put it, once humans extinguish themselves “the amoebas...which have no spiritual ambition [will] inherit an Earth still bathed in plenty of sunshine.” [17] No doubt from *old* beginnings will evolve *new* “forms most beautiful and most wonderful.” [18] The intelligent among them will realize that they owe their existence to bifurcation points in the Holocene just as we owe our existence to a bifurcation point in the late Cretaceous. Sorry Al, that is the truly inconvenient truth. [19] The cynic closes his eyes and dreams in geologic time. *A meteor strikes the Yucatán: exit dinosaurs, radiate mammalia, evolve Homo sapiens sapiens. Percepticide inoculates affluenza: exit Homo sapiens sapiens, radiate amoebas, evolve...*

WAKE UP! Any celebration of life without man is the consolation of fools. *How can the next generations keep the amoebas at bay?* The answer is obvious. They must burst the

bubble of percepticide. Homage to heads of state who did nothing to end the ecological holocaust must be systematically and thoroughly eradicated. *Mean spirited these guys.* No, simply just. Grounded in logic we think our social contract will be persuasive to the leaders of tomorrow and more importantly, to those of today. Because the contract strikes at the core of human motivation---status---it should be effective. *What about the puppets? The pusillanimous puppets of tomorrow?* If future leaders cannot bring themselves to decommission the names on small things like stamps or even big things like airports then, had they been alive today, we can rest assured that they would have stood by silently. E.O. Wilson will have been proven wrong. The generations to come will have no one to blame but themselves.

Our deal includes a *lagniappe*. We suggest a Pantheon of Infamy be erected with the names etched in granite---the rock of ages---of the heads of states in the countries of the OECD and Amazon basin who presided over the ecological holocaust. The full roll call should be placed outside United Nations Headquarters. It would be a *Yad Vashem* for twenty-first century biodiversity. Smaller memorials would be sited in strategic public spaces of each country so that the citizenry can quickly identify who were their heads of state when the holocaust transpired. For Brazil, we suggest the Praça dos Três Poderes in Brasilia, for the U.S., The Mall in Washington. That is our stick in the proverbial “carrot and sticks” of economic incentives.

Now for the carrot: Appendix II lists heads of states in the OECD countries according to their relative share of the aggregate OECD economy. Appendix III lists the heads of states in the countries of the Amazon basin according to their geographic share of natural forests (the latest available data at the time of press). [20] Appendix IV matches Appendices II and III. OECD countries should pay the opportunity costs of conservation to Amazonian countries according to GNP share and geographic share. Easements not to open new highways is the single most cost-effective measure to give biodiversity the breathing space needed for the development of sustainable uses. [21] Once the Amazon passes through the bottleneck of economic-to-sustainable development, the payments can stop.

The carrot is fine and dandy but I like the stick. Will it break with the first crack? Those mules are pretty darn stubborn. What historical evidence do we have? Many cases come to mind. For those who must see it to believe it, we google “Lenin statue Lithuania”. Before pictures, after pictures, and the after is stone rubble, a head here, an arm there, *Can we e-bay Lenin’s pinkie? How about his toe? Hey, I don’t like your example. What about the American Disabilities Act?* For the visually impaired, we cite a conspicuous absence in the linguistic landscape: Adolph, once a popular name in German and English, has all but vanished. *Name my son Adolph, you must be joking! The audience remains unconvinced. It’s a tough crowd.* Such examples are unpersuasive because they are extreme. An Adolph Hitler or a Vladimir Ilyich Lenin does not come along very often. They are bifurcation points of extraordinary evil. *Choose bifurcation points that are more recognizable to our banal heads of state.*

Our first is Herbert Hoover whose presidency (1928-1932) is credited for provoking and prolonging the Great Depression. Democrats reaped much political hay by attributing all the country’s woes to Hoover’s brief four years in office (granted he was Secretary of Commerce in the preceding administrations). Nothing stings like irony. The shanty towns, nicknamed Hoovervilles, must have really stuck in Hoover’s craw. *Uoo YUK! What part of the body is the craw?* But there are also ironies in an economic reading of history. Before, during, and after his presidency, Hoover-the-statesman did advocate what Keynesians would now classify as governmental stimuli. His most colossal project, both figuratively and literally, was a dam across the Colorado River. At its groundbreaking on September 17, 1930, Secretary of the Interior Ray L. Wilbur, announced that, from that moment onward, the project would officially be known as the Hoover Dam. *What a kiss ass!* Grant the guy the Nuremberg defense: he was just following orders. In 1933, Franklin Delano Roosevelt changed the name back to the Boulder Dam as it was originally called. *Wait, I’ve been there, and it’s definitely called the Hoover Dam.* In 1947 President Harry Truman signed a bill changing the name of the Boulder Dam back to Hoover. I’m confused. Our hypothesis is Ockham’s Razor: status drove the conception

of the Boulder Dam, drove its re-naming as the Hoover Dam, and once that name was rescinded, drove its re-re-naming as the Hoover Dam. *Stop. Now I'm even more confused.*

Harry Truman knew that his place in history was precarious. It didn't help one bit that Herbert Hoover, the cantankerous former president, had a grudge and a knack for turning a poetic phrase or two. Upon learning of Hiroshima and Nagasaki, Hoover would say "it revolts my soul." [22] According to Hoover, The Bomb was "the most terrible and barbaric weapon that has ever come into the hand of man. Despite any sophistries its major use is not to kill fighting men, but to kill women, children, and civilian men of whole cities as a pressure on governments. If it comes into general use, we may see all civilization destroyed." Although most former presidents gracefully fade away or die, this one, *this one I helped make into a scapegoat for fifteen long and humiliating years. Mea culpa... no, no, no...I take that back...nostra culpa, mine and Franklin's.*

Did the man who murdered hundreds of thousands of women, children and civilian men feel pangs of guilt over how he had trashed a well-meaning predecessor? Or did the failed haberdasher think *I will have to pay off this buffoon? Or, I'll get even with Roosevelt for keeping me out of the loop.* It is all speculation. We cannot get into Truman's head; we will never know. What is not speculation and what we do know is that, on April 30, 1947, Truman signed legislation which rescinded the name of the Boulder Dam. From that moment forward, it would again be officially called the Hoover Dam. Ten days later at the Gridiron dinner, Herbert Hoover would gush over the sitting *sitting* president's "high service to our country...amid the thousands of crises which sweep upon us from abroad, he has stood firm with his feet rooted in American soil." Truman scribbled on Hoover's program "With esteem and keen appreciation to a great man." [23] *Quid pro quo.*

As we write these words in the spring of 2006, Nestor Kirchner, President of Argentina, has declared a new national holiday. March 24th will commemorate the day that Argentina was plunged into state-run terror thirty years ago. Students of linguistics take note: "to disappear" has become a transitive verb. The day of mourning proves that any Truman-Hoover understanding is simply unsustainable. Every year, on the sixth day of

August, people the world over stop whatever they are doing. At exactly 8:15 AM they close their eyes in deep reflection. Some say a prayer. Harry Truman's legacy will be realized when the prayer is followed by a curse. *Damned is the soul who commits the crime that trumps mass extinction.* As for the "Hoover" Dam, may it never revert to its rightful name; it reminds us how a pilloried statesman would trade his integrity for an ersatz redemption. The Oracle laughs.

Our second example of a legacy reversed hails from Spain. Unlike the abruptness in Argentina, the reversal here steadily gained momentum until it has become almost complete. A mere thirty years after Francisco Franco finally died, his time on Earth is forgotten. Memory of his victims fills the void. In Granada, an exuberant homage is paid to its native son, Federico García Lorca, the poet and playwright. The Phalangists who helped bring Franco to power tortured García Lorca for three days before murdering him on August 19, 1936. Rumor has it that they inserted a revolver into the anus and discharged. Whatever the true horror of García Lorca's last moments, it is forgotten in the park that boasts his name. *El Romancero Gitano, Yerma, La Casa de Bernalda Alba* come to mind as one strolls the pebble footpaths to the whitewashed farmhouse. No matter what the weather or time of day, the sun always shines, the moon always rises. Within a short walk across the river is the stylish Palace of Conferences. The main hall bears the name García Lorca. And as for Franco, Francisco, who? Ah, him. His bones lie in Valle de los Caidos---a humongous mausoleum----blasted into a mountain outside Madrid. An oversized cross is jammed on top. It looks like a bunker.

The Readers Can Help Set the Boundary Conditions

The perennial question arises. What can I do? Olivia Newton John rings in our ears and we can't seem to stop the music. *Let's get physical, physical.* The bifurcation point does not bifurcate unless it amplifies changes in the flow of energy and material through the system. To borrow the prefix bandied about by economists, such points can be called "macro." We will refer to them as macro-bifurcation points. Within one's own social sphere, the possibility also exists of becoming a micro-bifurcation point. Harriet Beecher

Stowe and *Uncle Tom's Cabin* are our example *par excellence*. Her serialized story in 1851-52 was a macro-bifurcation point in the abolitionist struggle; those who argued over the weekly installments around the dinner table were micro-bifurcation points to the extent they persuaded family members and friends. If they convinced no one, then they themselves were just the very valuable part of the amplification effect. Through macro and micro bifurcations points and amplification effects, a sea change can occur. In the example of UTC, abolition became respectable.

To internalize the abstract concepts of bifurcation points, amplification effects and boundary conditions, each of us must draw on our own experience. With sangfroid, we must classify ourselves and what we do in physical terms. *Wanna get physical, let's get into physical*. Is it a macro or micro bifurcation point? Or simply the amplification effect of external bifurcation points? And what are the boundary conditions? For those of us in education, the exercise is easy. We turn to Joseph who taught, every semester from 1994-2003, a week long module on ecological economics in the Tropical Ecology program in Ecuador for The School for International Training (SIT). The boundary conditions were the students who were smart, well prepared, and best of all, enthusiastic.

The program was not for the faint of heart. Over the course of one semester, the group would travel to the Amazon, the Galapagos, and around the Sierra; the capstone was a structured three week field research project. After every lecture, students would approach Joseph and ask for advice. Usually the enquiry was about the project but occasionally questions veered off track. One student asked Joseph to recommend programs in the Amazon for the upcoming summer. Joseph was nonplussed. He thought that the semester, once completed, was the structured program that enabled students to go to places on their own and have “unstructured experiences.” Expressing something to that effect, the student’s response is burned into Joseph’s memory. “Graduate Schools don’t count ‘unstructured experiences.’” The student was right of course. Joseph didn’t realize that a summer experience in the Amazon was a means to a very specific end, enhanced probability of graduate school admission. Not as quick-witted, he remained embarrassingly silent.

Several years later and after much reflection, the rejoinder is clear, albeit belated. We direct it to all twentysomethingyearolds who realize that the future is contingent on the decisions taken today. E.O. Wilson, the most accomplished professor of biology of our time, did not have a structured program when he took off with Tom Eisner in a beat-up car on a road trip to discover the biota of U.S. National Parks. It created a lifelong passion for conservation. [24] In that same year, 1952, ten thousand miles due South, Ernesto (Ché) Guevara and Alberto Granado hopped on a motorcycle and began a journey that resonates over time for all who dream of social justice. An ocean away and one hundred and twenty years earlier, Charles Darwin set sail on H.M.S. The Beagle. His only real obligation was to be the dinner companion for the fastidious Captain Robert Fitzroy. [25]

Charles, Ed, and Ernesto, all twenty-two years olds at the time, internalized what they experienced. *Let's get animal, animal/I wanna get animal, let's get into animal.* They too were intuitive thermodynamicists. Not only did they change the world, but in many ways, they are still changing it. They are bifurcation points and we the amplification effects. The most formative experiences will come, not from structured experiences, but from the unstructured ones. It is the difference between ever possibly becoming a macro-bifurcation point versus always being the amplification effect of some one else's.

Identity politics gives us hope

Inasmuch as mankind created the problems of today, mankind can solve them. This is what gives Jared Diamond hope. [26] What gives us hope? Unlike Diamond, we take little comfort in the mere possibility of solutions. We need something more instrumental. After much reflection, what gives us hope is identity politics. Women, religious and racial minorities, GLBTs, the disabled, and the list can go on and on have all suffered tremendous injustices and, nevertheless, made headway toward full equality through identity politics.

Our hope may seem paradoxical given our espousal of evolution. Evolution shows how difficult it is to play identity politics along the usual matrix of classifications. Our genes will jumble with those of others with whom we share no identity, reminding us that the individual is a transient vessel of genes in a sea of chance encounters. Our cultures will likewise jumble and shift as globalization and technology advance at breakneck speed. To adapt the most famous metaphor in evolution, any individual is a branching bush sliced at its base and held upside down. We the living are the trunk and can trace back our mixed ancestries, each with its combination of genes and social history. Vanity usually gets the better of us and we choose to tease out the branches that are the most appealing, according to the current vogue.

Identity politics is personal and we have no choice but to delve into our personal histories. Camilo is of African, indigenous, and Spanish/Portuguese descent. Family legend has it that his great-great grandmother was lassoed by, one supposes, the great-great grandfather. May be she was; may be she wasn't. A lassoed grandmother is a cliché in Brazil that even surfaces in *Maira*: "Many people look Indian and...boast that their grandmother was captured with a lasso." (13) Other ancestors were farmers and one was a dentist. Joseph's genealogy is better documented and includes a Pennsylvania Quaker family that was well-heeled at the time of the American Revolution. [27] Family legend has it that his great-great-great-great grandmother danced with the French General Marquis de Lafayette. Maybe she danced; maybe she didn't. What is documented is that the family did not practice what their faith preached: abolition and pacifism. The same great-great-great-great grandmother owned a "Negro Boy named Jeppo" and the men supported the revolutionary cause. "General Washington slept in the second story over the parlor, and General Lafayette in the latter room." [28] Closer to the trunk of Joseph's tree is an alcoholic prison guard---a Republican with a reputation among the prisoners for being really mean. With whom does Joseph choose to identify? With whom does Camilo? Honesty and biology dictate that we not pick and choose. Because equal treatment means equal representation, we choose none of the above. Instead, we identify with the tree itself---the evolutionary process---where gene frequencies wax and wane and sex makes utter mockery of any genealogical pretension. [29] By identifying with

evolution, we make common cause with the other products of evolution---the beetles and bugs, even the slimes and the moulds of the Amazon.

Because we identify with the process of evolution, we recognize the threat posed by ideologies that deny us our existence. In the U.S., those ideologies have infused the top rungs of government in all its branches (the executive, the legislative and the judicial). The effects are deadly on us-the-biotic-community. In our crystal ball, we see future humans looking back on the powerbrokers of today with the same contempt that we now look back on the despots who kept the slaves illiterate. Frederick Douglass knew that education was the only real emancipation; we feel in our bones that only by internalizing evolution will conservation ever become possible. We have never met a professional biologist who is not alarmed by the mass extinction crisis. Nor have we ever met one who doubts the wisdom of limits. In contrast, we have never heard a TV evangelist exhort his congregation to stop the ecocide that ravages the planet. On the contrary, many facilitate it by telethons for missionary work in places like the Amazon.

What gives us most hope of all is that the learning of evolution cultivates our innate sense of justice while helping us to transcend any innate sense of privilege. We refer to justice within our species as well as justice among species. [30] Our cynic has been quiet for a long time. We scan the audience and see he's still here; we make eye contact and he perks up. *What, pray tell, will we eat? The simple act of eating kills something. Vegans, check out the windshield on any fresh produce truck.* The cynic is right and we must condition our remarks. For man and the great apes, the right to life extends to the individual. [31] Beyond those primates, the right to life is attenuated and includes just the right of each species, as a member of the biotic community, to continue evolving in that community. This is the ethic we must embrace now for our inner tranquility and peace of mind.

We find ourselves moralizing when we do not wish to moralize. Perhaps it started with our choice of *Uncle Tom's Cabin* in Chapter Three. Any deep reflection about slavery is profoundly disturbing when one's ancestors were either slaves or slaveholders.

Deforestation is similarly disturbing, especially when one's country is either the biggest deforester in the world or the biggest financier of that deforestation. But moralizing does injustice to Stowe as well as the authors of the works in our ecocritical package. The most unfair review of UTC was its characterization as one long sermon. It was not a sermon. It was disparaged as such because Stowe had faith that change was possible. Amazonian deforestation, like slavery, is not pre-ordained by God and the sheer scale of the horror is no cause for hopelessness. Nor is now the time for Prozac. We need all our senses sharp and Big Pharma is rich enough. Ecocritics must lighten up and lighten up fast. They must make their case *entertaining*. We include ourselves and will practice what we preach in these concluding remarks.

Agrado as an Allegory

We end this book talking about our cat. Her name is Agrado. She was named after a master of improviso in the Almodóvar film *All About my Mother*. Agrado means "I please" in Spanish.

Agrado moved from her ancestral home in New Orleans to Macomb, Illinois with Camilo when he accepted his first faculty position at Western Illinois University (WIU) in August 2003. Her name gained a new pronunciation by Amir, the four-year old son of a Venezuelan father and a German mother who began his journey on Earth in Saudia Arabia (*talk about globalization*). Although Amir was trilingual, his pronunciation of Agrado was decidedly German: Ahgraaado. The following year, Camilo left WIU to join the faculty of University of Puerto Rico-Rio Piedras. Ahgraaado would take up residence in an apartment on San Justo Street in Old San Juan.

Ahgraaado has humble origins. Born in the crawl space under a shot gun house built in 1929, her mother was a stray named Raul, until one day Camilo discovered that Raul was pregnant and re-named him/her, Raula. From the tender age of six months, Raula gave birth to several litters at whatever is the maximum frequency for feline ovulation. The kittens of each litter always died quickly. Joseph took pity and, against his better

judgment, began to feed Raul/Raula. What a difference nourishment makes! Not just on the cat; Joseph was emotionally invested. Two kittens were born who made it through the terrible twos (two months that is). One was taken by a hawk leaving a lone sister to face the world (Agrado). Joseph convinced a friend, Julee Tate, into snatching the two month old kitten peacefully sunning herself in the backyard patio. Grabbed by the back of her neck, Julee brought the kitten inside. Once captive, all of Agrado's instincts came to the fore: she hid behind the couch and hissed until she was hoarse, lashing out with her miniscule claws. It was cute to see that tiny ball of fur producing such a furious repertoire of behavior. Exhausted from the trauma, Joseph would gently touch the top of her head. Contact was made. After fatigue set in from all the huffing and puffing, the kitten must have thought: this isn't all that bad *or* I am going to be gobbled up by this lumbering primate. That night Joseph shut the door to the parlor and Agrado's fears turned to paranoia: "is the primate now playing cat-and-mouse on me, a cat?" It was muggy and the windows were open. Agrado cried plaintively and just outside, her mother wailed. The sobbing went on for *hours*. Joseph couldn't take it any longer, got up around 3:00 AM, and opened the screen door. Bewildered by her good fortune, Agrado slowly stepped out...into freedom. Literally jumping for joy, she rolled over the back of her mother. The two were re-united at long last (12 hours in the life of a kitten is a *long* time). Joseph sighed, born a feral cat, she is destined to live the hard and short life of a feral cat. *Asi es*. At least, she would be happy.

We continued to feed mother and daughter. One day, without any notice, Raula and Agrado disappeared. Agrado was about four months old at the time. When the two returned a week later, the mother looked imploringly at Camilo, as if to say, take good care of my baby. Then Raula was gone forever, never to reappear. Agrado quickly took to rubbing our legs and letting us pet her. She was not only tame but extremely sociable. At dinner parties, Agrado would gently move from lap to lap so that everyone would have a turn to stroke her.

Agrado's genealogy is not what one talks about in polite company. Her father was also her grandfather and probably her great-grandfather. If Agrado were left un-operated, this

Don Juan of the feline world would surely have been her rapist too. In the language of genetics, Agrado was a backcross as were all the other cats in the neighborhood. They would congregate in the street, some 50 or more, and it looked like some sort of futuristic vision of biotechnology gone horribly awry: a herd of cloned black cats with almost all the same white markings on the paws. We wonder what became of all those cats in the wake of Hurricane Katrina.

Five years later, Agrado never ceases to amaze us. *She gives us hope when hope is gone/She gives us strength to journey on* (or at least she inspires us to adapt that memorable stanza from *Les Miserables*). On a rainy Saturday night, Ahgrado jumped up on a balcony wall in our apartment in Old San Juan. Cats are indeed curious and perhaps this one wanted to see what was all the commotion three floors below. The next morning, Joseph heard meowing from outside. Not recalling any other cats in the adjoining buildings, he thought, how strange? Agrado did not appear for breakfast, he thought again, how strange? A light switched on in his head. Agrado was MISSING...the faint meowing...was that of Ahgraaado. It came from the street level some forty feet below.

E.O. Wilson would pepper his biology lectures with jokes and riddles. Joseph remembers one vividly. Humanity was like the *non-suicidal* man who foolishly jumps off the Empire State Building. When passing the fortieth floor, the man shouts to a startled secretary who happens to be looking out the window, “so far, so good!” Ahgraaado is much smarter than Wilson’s fool. She knew the peril of her fall. Proof is the finely etched scratch marks which go down the balcony wall. Fortunately, the street San Justo is lined with potted palm trees. Agrado had the infinitely good fortune to land in one of those pots rather than on the unforgiving macadam.

“Thank God” we exclaim. Agrado is alive. She survived the fall. All nine of her nine lives were used up in one full swoop. On reflection, we do not give thanks to God that Agrado is still with us. Nor do we bend to the superstition that cats, and black ones in particular, have special powers. We give thanks to biophilia for the potted palms.

Appendix I

Syllabus

The syllabus may be copied *verbatim* or adapted from the one provided below. To space out screenings over the semester, coverage of the text and films does not follow the order of the chapters in the book.

Course Title:

Amazonia in the Arts: Ecocriticism versus the Economics of Deforestation

Required Readings

The Burning Season: The Murder of Chico Mendes and the Fight for the Amazon Rain Forest, Andrew Revkin. Boston: Houghton Mifflin Company 1990.

Maira, Darcy Ribeiro, Rio de Janeiro: Record, 1989.

The Old Man who Read Love Stories, Luis Sepulveda, Trans. Peter Bush. London: Souvenir Press Ltd., and Harcourt Inc, 1993.

Uncle Tom's Cabin, Harriet Beecher Stowe.

<http://www.iath.virginia.edu/utc/uncletom/uthp.html>, 1852

*Amazonia in the Arts: Ecocriticism versus the Economics of Deforestation*TM Camilo Gomides and Joseph Henry Vogel (available at <http://economia.uprrp.edu/PDF%20files/amaazonia.pdf>), 2007.

Supplemental bibliography

The Biophilia Hypothesis, Stephen R. Kellert and Edward O. Wilson, Washington, D.C.: Island Press, 1993.

Argumentation and Debate, Austin J. Freeley and David Steinberg. Belmont, CA: Wadsworth. 1999

The Economics of Deforestation, Sven Wunder, New York: St Martin's Press, 2000.

Screenings

The Burning Season, Dir: John Frankenheimer. Home Box Office. 1994

Bye Bye Brasil, Dir: Carlos Diegues. Embrafilme, 1980.

At Play in the Fields of the Lord, Dir: Hector Babenco. Universal Pictures, 1991.

The Emerald Forest, Dir. John Boorman. Embassy Pictures Corporation, 1985.

The Old Man who Read Love Stories, Dir. Rolf De Heer, 2001.

The Motorcycle Diaries, Dir. Walter Salles, 2004.

Course Description

From the sweep of natural history, Amazonian deforestation should be a recurrent topic in our conversations with friends and family. The fact that it is not reflects the medium in which it is presented: science. Required texts and films have been chosen for their artistic merit, emotive appeal, and verisimilitude with the system of Amazonian deforestation as established in the sciences. These works complement one another and form an “ecocritical package.” The course will examine whether the package can persuade audiences to “live within limits” and actively promote the limit of “no deforestation.”

Objectives of The Course

Economic theory is difficult, even for economists. This course will allow the student and instructor to navigate the controversial economics of deforestation and examine art as a variable in the formation of preferences. Students and instructors will classify texts and films according to distinct schools of economic thought and then, through reflection and analysis, begin to question the tenets of those schools, considering an alternative: an Ecocritical School of Deforestation. Techniques of oral expression are honed through academic debates on issues relevant to Amazonian deforestation. Every one (instructor included) needs tremendous practice in the art of debating. An overarching objective of the course is to shed our inhibitions in engaging in debate and in assessing one another’s performance.

Team Assignment

Four debates are scheduled around simple propositions regarding Amazonian deforestation [e.g., New highways (should/should not) be permitted in the Amazon]. Students will work in small teams of *pro/contra*; the size of the team will vary according

to the size of the class (number of students divided by two sides divided by four propositions; e.g., 24 students divided by 2 divided by 4=3 students per team; 20 students divided by 2 divided by 4=2.5 students---ergo, 2 debates with 2 students per team and 2 debates with 3 students per team). Students will be assigned *randomly* to one of the four propositions and to either the *pro* or *contra* team. To become persuasive, each team should discover salient arguments relevant to both sides of the proposition.

Students must brainstorm and locate supporting material through internet searches of reputable sites. They must choose and coach a spokesperson for making the introductory remarks. A substitute spokesperson must also practice in the event of a “no-show.” In those remarks, the spokesperson should make specific reference to scene(s) or theme(s) in the movie or book recently covered in class. This means reading/viewing with a purpose. During the subsequent debate, the spokesperson should defer to his/her other team members when answering questions and offering rebuttals. In other words, no team member should dominate the debate.

The introductory remarks will be of limited duration and may make use of visuals (no more than a couple of photos on powerpoint or one 60 second clip). The introduction by the opposing team will immediately follow. Which team begins will be determined by a toss of a coin. Both the team members and the class audience must listen critically to the introductory remarks and take notes.

After the introductory remarks, the audience will have to print legibly two questions. The student signs the sheet as the quality of his/her question also reflects critical reasoning and preparedness (e.g., a loaded question is a very poor question). The instructor will then collect and glance through the questions, choosing two according to his/her perceived opportunity for fleshing out the debate. The instructor will pose the question to the teams which will confer and then answer each question.

After the round of two questions from the audience, each team will confer to rebut the answers posed by the opponent team. A team member who did not make the introductory

remarks should draw upon issues raised during the debate to support the position made in the introductory remarks. The rebuttal/concluding remarks should try to tie in the points raised in the round of questions from the audience. A framework for these concluding remarks/rebuttals should be prepared prior to the debate in a fashion that is sufficiently flexible to allow integration of points raised during the debate.

Time flow of Debate for a 70 (50) minute class

(TEAM MEMBERS AND AUDIENCE CANNOT BE LATE)

4 (3) minutes to arrange desks, set up audiovisual equipment, and toss a coin;

10 (6) minutes for introductory remarks for first team;

10 (6) minutes for second team;

5 (3) minutes of pause for drafting questions;

5 (4) minutes of pause for instructor to select and write questions on whiteboard;

2 (2) minutes for team members to confer;

4 (3) minutes to respond to first question by second team;

4 (3) minutes to respond by first team; timekeeper moves on to second question

4 (3) minutes to respond to second question by second team;

4 (3) minutes to respond to second question by first team

4 (3) minutes for both teams to confer;

5 (4) minutes for rebuttal and concluding remarks by first team;

5 (4) minutes for rebuttal and concluding remarks by second team;

4 (3) minutes to return desks to original position and dismount audiovisual equipment.

Because a timekeeper will be assigned at random in each debate, everyone must be prepared to know how timekeeping works. He/she will be given a stopwatch and a simple cooking timer that rings. He/she will sit in the front row facing the debaters and hold up a sign showing when 1 minute is remaining. When the time is up, the timekeeper must be assertive and cut off the speaker even if in mid-sentence. "SORRY, TIME IS UP!" If the speaker continues, then the timekeeper must intone politely but emphatically "SORRY, TIME IS UP!" If time is lost due to lack of cooperation of a team member, then the time consumed is subtracted from the time allotted to the following question for that team (e.g., "You have 2 rather than 4 minutes to respond to the next question").

Debating is an ancient art form. For this course, each member of the audience is a judge and must base his/her assessment of the team on how the debate was presented. The timekeeper will also be evaluated. In the evaluation, arguments *ad hominen* are not permissible. Each team member will have a folded sheet of cardboard with his/her name and number (e.g., John Doe #2). In assessing the performance of each team member, numbers, not names should be used (e.g., speaker #2, not “John Doe”). Students from the audience will cite what evidence selected or line of reasoning was especially effective (e.g., supportive and logically consistent) and also what was not and why (e.g., identifying the fallacy of logic). Presentation skills should also be noted (e.g., speaker #2 fidgeted with his pencil, speaker #1 twirled her hair, speaker #4 bit his lip, etc.). The assessment must be no more than one typed page single spaced per team member judged and returned to the instructor in the next class period. Late submissions will not be accepted.

For a comprehensive reference on debating and the fallacies of logic, see *Argumentation and Debate* or one of the many websites dedicated to debating. For example, <http://debate.uvm.edu>

The instructor will abstract the comments from the assessments and draft a 500 word synopsis.

Individual Assignment

The students should identify a movie that refers to the Amazon which is not screened in class. The movie may be about the Amazon (e.g., *Creature of the Black Lagoon*, *The Green Wall*) or any that has scenes set in the Amazon (e.g., *Proof of Life*, *Pantaleon y las visitadoras*). As the students send emails to the instructor of the film selected, the instructor will post them on the webcourse site. No one will review the same film, so the student should check what has already been selected by fellow students; the instructor assigns on a “first come/first serve” basis. To find candidate films, enter www.imdb.com

or www.rottentomatoes.com and search under keywords for “Amazon River” or “South America” and “jungle.” With a space limit of 1000 words, the student will analyze the film using concepts drawn from ecocriticism. This will require repeated viewings of the film. To make the review more appealing, he/she should include one or two takes, cutting and pasting them from the DVD, and creating a catchy caption that makes reference to a point raised in the review. Drafts should be submitted in the 8th week, and will be returned by the 10th week with comments; final review versions should be submitted the 12th week of class. With student permission, the best constructed reviews will be uploaded on the webcourse site.

Grade Evaluation

Criteria	Percentage assigned
Debates: Enthusiasm, Preparedness, and Capacity to Receive Assessment with Good Cheer (i.e., no points lost if team members inadvertently fidget, twirl their hair, bite their lip, etc; evaluation of debate is based on effort---so do not be anxious over what grade one receives on the debate. If one demonstrates enthusiasm, preparedness and the capacity to receive assessment with good cheer, one will obtain all 10 points.)	10%
Quality of submitted questions during debate and assessments of team members (i.e., effort doesn't count here; evaluation is based on how well the student can formulate questions during the debate and later assess team members' performance.)	20%
Movie review (i.e., based on the final corrected draft.)	20%
Participation in DISCUSSION BOARD	10%
Final Exam (i.e., multiple choice, fill-ins, short-answers, and brief essays, based on comprehension and synthesis of the required texts and films.)	40%

Calendar	Theme	Assignment
Week One		
Session 1	Introduction of Professor, of Network, Review of Syllabus with Emphasis on the Mechanics of the Debate, Use of Random Number	

	Table in Selection of Teams, Propositions, and Timekeepers; Powerpoint Presentation of The Map of The Amazon with the selected works of art, and some photo slides. Questionnaire (pre-course)	
Session 2	Powerpoint Presentation of <i>The Biophilia Hypothesis</i> and The Purpose and the Promise of Ecocriticism	1. www.interviews_and_conversations/EOWilsonarts.envirolink.org/html 2. www.mkzdk.org/biophilia2.html 3. www.findarticles.com/p/articles/mi_m1510/is_n82/ai_15297572.html 4. Preface and Chap. 1 of <i>Amazonia in the Arts</i> (AA) Supplemental: Any chapters from <i>The Biophilia Hypothesis</i>
Week two		
Session 3	Screening of Film <i>Bye-Bye Brasil</i>	Chap. 9 of AA
Session 4	Powerpoint Presentation of Ecocritical analysis of the Film. Twenty minute rehearsal of the mechanics of the debate (where one sits; how timing is kept, etc.)	Background internet research on debate proposition for team members AS WELL AS members of the audience who will formulate questions
Week three		
Session 5	Organized Debate	Research the Proposition: New highways (should/should not) be permitted in the Amazon
Session 6	Powerpoint presentation of key concepts from <i>Argumentation and Debate</i> followed by classroom analysis of the debate	Submission by audience of assessments of team members
Week four		

Session 7	Powerpoint Presentation of <i>Uncle Tom's Cabin</i>	Preface, Chapter 1-6, 8, 15, and 26 of <i>Uncle Tom's Cabin</i> ; Supplemental: the entire book
Session 8	Powerpoint Presentation of Ecocritical Analysis of Versimilitude and Ecocriticism versus the Economics of Deforestation	Chap 2 and 3 of <i>Amazonia in the Arts</i> Email communication to instructor of film selected for written review
Week five		
Session 9	Screening of the film "The Old Man who Read Love Stories"	The entire book <i>The Old Man who Read Love Stories</i>
Session 10	Powerpoint Presentation of Ecocritical Analysis of Book <i>The Old Man</i>	Chap. 4 of AA
Week six		
Session 11	Screening of <i>At Play in the Fields of the Lord</i> (Part I)	Work on drafting movie review
Session 12	Screening of <i>At Play in the Fields of the Lord</i> (Part II)	Work on drafting movie review
Week seven		
Session 13	Powerpoint Presentation of Ecocritical Analysis of <i>At Play</i> Ten minute rehearsal of the mechanics of the debate.	Chap. 8 of AA
Session 14	Organized Debate	Research the Proposition: Freedom of religion (should/should not) include the freedom to convert others.
Week eight		
Session 15	Powerpoint presentation of key concepts from <i>Argumentation and Debate</i> followed by classroom analysis of the debate	Submission of assessments
Session 16	Powerpoint presentation of the book <i>The Burning</i>	<i>The Burning Season</i> (first half of book)

	<i>Season</i>	Submission of Draft Reviews of Selected Films
Week nine		
Session 17	Screening of the film <i>The Burning Season</i> .	Chap. 6 of AA
Session 18	Powerpoint presentation of Ecocritical Analysis of Novel to Film Adaptations	<i>The Burning Season</i> (second half of book)
Week ten		
Session 19	Organized debate	Research the Proposition: Anyone concerned about Amazonian deforestation, (should/need not) boycott the unsustainable exports of the Amazon.
Session 20	Powerpoint presentation of key concepts from <i>Argumentation and Debate</i> followed by classroom analysis of the debate / Return of Draft Reviews of Film	Submission of assessment of team members by audience
Week eleven		
Session 21	Powerpoint presentation of <i>Maira</i>	The entire book <i>Maira</i>
Session 22	Powerpoint presentation of ecocritical analysis of <i>Maira</i>	Chap. 6 of AA
Week twelve		
Session 23	Screening of <i>The Emerald Forest</i>	
Session 24	Ecocritical analysis of film / Submission of Final Reviews	Chap. 7 of AA
Week thirteen		
Session 25	Organized debate	Research the Proposition: To defend the Amazon, one (must go/need not go) to the Amazon.
Session 26	Powerpoint presentation of key concepts from <i>Argumentation and Debate</i> followed by classroom analysis of the debate / Selection of a	Submission of assessment of team members by audience

	Handful of Best Reviews	
Week fourteen		
Session 27	Screening of “The Motorcylce Diaries”	
Session 28	Powerpoint Presentation of Ecocritical Conclusions	Chap. 10 of AA
Week fifteen		
Session 29	Open Classroom Discussion; Posting of Reviews on webcourse site. Questionnaire (post-course)	
Session 30	Open Classroom Discussion or scheduling of Final Examination, at discretion of Instructor	

Final Examination

If not the last day of class, then during the scheduled exam period.

**Appendix II: Leadership and Relative Share of Aggregate OECD
Economy**

<i>COUNTRY</i>	<i>HEAD OF STATE, 2006*</i>	<i>GNP 2004 BILLIONS OECD</i>	<i>GNP/ Aggregate OECD GNP</i>
United States	George W. Bush	10703.9	38.61
Japan	Shinzo Abe	4932.5	17.79
Germany	Angela Merkel	1952.7	7.04
United Kingdom	Tony Blair	1591.4	5.74
France	<u>Dominique de Villepin</u>	1414.8	5.10
Italy	Romano Prodi	1133.2	4.09
Canada	Stephen Harper	786.7	2.84
Spain	Jose Luis Rodríguez Zapatero	655.6	2.36
Mexico	Felipe Calderon Hinojosa	617.9	2.23
Korea	Myeong Sook Han	613.1	2.21
Australia	John Howard	455.6	1.64
Netherlands	Jan Peter Balkenende	398.5	1.44
Sweden	Göran Persson	263.2	0.95
Switzerland	Moritz Leuenberger	253.8	0.92
Belgium	Guy Verhofstadt	246.3	0.89
Turkey	Recep Tayyip Erdoğan	229.3	0.83

Austria	Wolfgang Shüssel	205	0.74
Poland	<u>Jarosław Kaczyński</u>	186.6	0.67
Norway	<u>Jens Stoltenberg</u>	180.7	0.65
Denmark	Anders Fogh Rasmussen	166.1	0.60
Greece	Kóstas Karamanlís	135	0.49
Finland	Matti Vanhanen	132.1	0.48
Ireland	Bertie Ahern	118.2	0.43
Portugal	José Sócrates	115.7	0.42
Czech Republic	<u>Mirek Topolánek</u>	62.7	0.23
New Zealand	Helen Clark	61.7	0.22
Hungary	<u>Ferenc Gyurcsány</u>	55.1	0.20
Slovak Republic	Robert Fico	24.3	0.09
Luxembourg	Jean-Claude Juncker	21.9	0.08
Iceland	Geir H. Haarde	9.5	0.03

*Head of state is a generic term that allows us to group individuals in distinct political systems whose office holds the most power in the country.

**Appendix III: Leadership and Relative Share of the Natural Forests of
the Countries of the Amazon Basin**

COUNTRY SHARING AMAZONIA	HEAD OF STATE 2006	NATURAL FOREST AREA (Thousands of hectares)	% SHARE OF NATURAL FORESTS IN COUNTRIES OF AMAZONIAN BASIN
Brasil	Luiz Inácio Lula da Silva	546293	68.04
Peru	Jorge Del Castillo	67378	8.39
Colombia	Álvaro Uribe Vélez	52862	6.58
Bolivia	Evo Morales Aima	48282	6.01
Venezuela	Hugo Chávez Frias	43742	5.45
Guyana	Samuel Hinds	18596	2.32
Surinam	Ronald Venetiaan	14713	1.83
Ecuador	Alfredo Palacio	11092	1.38

Appendix IV: Match-Making: Through the bottleneck of “Economic-to-Sustainable Development”

Country to Receive Benefit % of Amazon Basin	Countries to Pay Benefit % Share of Aggregate OECD Economies	% Contribution of the Opportunity Costs for having forgone “economic development” of natural forests
Brazil 68.04	US 38.61	$38.61 / 68.04 = 56.7$
	Japan 17.79	$17.79 / 68.04 = 26.1$
	Germany 7.04	$7.04 / 68.04 = 10.3$
	United Kingdom 4.6	$4.6 / 68.04 = 6.8$
Peru 8.39	United Kingdom 1.14	$1.14 / 8.39 = 13.6$
	France 5.10	$5.10 / 8.39 = 60.8$
	Italy 2.15	$2.15 / 8.39 = 25.6$
Colombia 6.01	Italy 1.94	$1.94 / 6.58 = 29.5$
	Canada 2.84	$2.84 / 6.58 = 43.2$
	Spain 1.8	$1.8 / 6.58 = 27.4$
Bolivia 6.01	Spain 0.56	$0.56 / 6.01 = 9.31$
	Mexico 2.23	$2.23 / 6.01 = 37.1$
	Korea 2.21	$2.21 / 6.01 = 36.7$
	Australia 1.01	$1.01 / 6.01 = 16.8$
Venezuela 5.45	Australia 0.63	$0.63 / 5.45 = 11.6$
	Netherlands 1.44	$1.44 / 5.45 = 26.4$
	Sweden 0.95	$0.95 / 5.45 = 17.4$

	Switzerland 0.92	$0.92 / 5.45 = 16.9$
	Belgium 0.89	$0.89 / 5.45 = 16.3$
	Turkey 0.62	$0.62 / 5.45 = 11.4$
Guyana 2.32	Turkey 0.21	$0.21 / 2.32 = 9.1$
	Austria 0.74	$0.74 / 2.32 = 31.9$
	Poland 0.67	$0.67 / 2.32 = 28.9$
	Norway 0.65	$0.65 / 2.32 = 28.0$
	Denmark 0.05	$0.05 / 2.32 = 2.2$
Surinam 1.83	Denmark 0.55	$0.55 / 1.83 = 30.1$
	Greece 0.49	$0.49 / 1.83 = 26.8$
	Finland 0.48	$0.48 / 1.83 = 26.2$
	Ireland 0.31	$0.31 / 1.83 = 16.9$
Ecuador 1.38	Ireland 0.12	$0.12 / 1.38 = 8.7$
	Portugal 0.42	$0.42 / 1.38 = 30.4$
	Czech Republic 0.23	$0.23 / 1.38 = 16.7$
	New Zealand 0.22	$0.22 / 1.38 = 15.9$
	Hungary 0.20	$0.20 / 1.38 = 14.5$
	Slovak Republic 0.09	$0.09 / 1.38 = 6.5$
	Luxembourg 0.08	$0.08 / 1.38 = 5.8$
	Iceland 0.03	$0.03 / 1.38 = 2.2$

SOURCES: World Development Indicators Database, August 2005

<http://web.worldbank.org/WBSITE/EXTERNAL/DATASTATISTICS/0,,contentMDK:20398986~menuPK:64133163~pagePK:64133150~piPK:64133175~theSitePK:239419,00.html>;

http://www.fao.org/documents/show_cdr.asp?url_file=/docrep/007/ae341e/AE341E05.htm;
<http://www.oecd.org/dataoecd/48/4/33727936.pdf>; Wikipedia.

Acknowledgments

Acknowledgments are often perfunctory. They look backward thanking people and organizations who made the book possible. Given the radical nature of this book, our thanks will be anything but perfunctory. It is sincere and heartfelt. Before giving such thanks, we will first look forward. We thank the people who will use this book proactively in formal courses and informal conversations. To end Amazonian deforestation, vigorous debate is of paramount importance. Modern technology can both facilitate and empower it. Through the use of internet discussion boards, disparate readers can make common cause. An ecological holocaust is transpiring because the attention of the public is fragmented. We hope to defragment it.

Now for the sincere and heartfelt thanks to the people who made this book possible. They begin with the faculty of Spanish and Portuguese at Tulane University, and especially the dissertation advisors of Camilo: the director Ana Lopez and the readers, Tatjana Pavlovic, and Christopher Dunn. *Ecocrítica a raíz de la deforestación amazónica* was the first dissertation ever written in Spanish on ecocriticism. None of the advisors was versed in the topic yet all graciously accepted the risk. Risk-taking continued at the journal *OMETECA* which published our early forays into ecocriticism in 2004 and 2005. We also thank the editors of *ISLE* who published in 2006 Camilo's formalization of a new and rigorous definition of ecocriticism. The risk-taking at the theoretical level was matched by risk-taking at the institutional level. The Office of The Dean for Graduate Studies and Research of The University of Puerto Rico-Rio Piedras provided us with the largest grant ever awarded to a joint project in the humanities and social sciences. We wish to thank the Dean Ana Guadalupe and Assistant Dean Susan Homar for their support. Half of that grant funded Carlos Muñiz, Ph.D. candidate in education, for the academic years 2004-2006; Carlos is the best research assistant that Joseph has had in twenty years. We would also extend our thanks to the Department of Economics for providing Joseph with release time to refine the book and serve as Director of the Research Unit of Economic Research. Inasmuch as few of his colleagues had any prior knowledge of the theme, we once again

enjoyed the risk-taking of others. In the Research Unit, Janny Robles, Enid Fabre, and Joel Oyola provided meticulous research on key points of the book.

The background research involved much travel. We are thankful to The Harriet Beecher Stowe Center in Hartford, CT and the kind reception of Sabra Ionno who allowed us access to the original 1852/53 translations of *Uncle Tom's Cabin* in Spanish and Portuguese. At the Darcy Ribeiro Foundation in Rio de Janeiro, we received similar hospitality from Tatiana Memoria who allowed us access to the personal library of Darcy Ribeiro. In Brazil, a young cousin of Chico Mendes, Leandro Mendes very much enriched our experience while in Acre. In Ecuador, we must give special thanks to the students and professors of Facultad Latinoamericana de Ciencias Sociales (FLACSO) where Joseph was a professor from 1994-2003 and taught the course entitled "The Economics of Biodiversity." Fander Falconí, Joseph's former student and now chair of the Economics Department, claims that Joseph's time in Ecuador radicalized his former professor and later colleague. Our response is to thank the country of Ecuador.

The book is an ongoing experiment. It began when we floated the proposal to teach a standardized course among a network of universities; some fifty academics expressed interest in adopting the course but in the end we were just three. Besides ourselves from the Departments of Foreign Languages and of Economics of the University of Puerto Rico-Rio Piedras, we are joined by Cheryll Glotfelty of the English Department of The University of Nevada, Reno, and Gustavo Chacón of the Environmental Science Department of La Universidad de Azuay in Ecuador. The departmental affiliation of the professors (respectively, Foreign Languages, Economics, English Literature, Environmental Science) is evidence that the course is truly transdisciplinary. It can also be taught at multiple levels. In the pilot project, Joseph taught it as a graduate course and Cheryll and Gustavo, as an undergraduate course. We daresay that it could even be taught in the High School curriculum. Joseph remembers how his High School English teacher, Linda Cifelli, taught challenging texts such as *The Sound and The Fury* and *A Portrait of the Artist as a Young Man*. Similarly, Camilo recalls how his High School Biology teacher, Maria Clara Gomide, invigorated the class with her own enthusiasm for

evolution. The mark of both these dedicated teachers on adolescent minds can be found in this book. They remind us that the solution to any environmental problem is only sustainable through good public education. Now that we are professors, we extend thanks to our students. Although it may sound trite, it is we who are learning from the students, not the other way around. Ultimately, we can only help them define themselves.

With great pride, we see that the students of Prof. Glotfelty not only internalized the lesson of limits but also the more radical notion that they can be part of the solution. Each wrote a thoughtful letter expressing what worked and didn't work in the pilot project. Over the Spring Semester 2006, the students read a rough draft uploaded chapter by chapter. Should the students now read the published version and compare copies, they will find their contribution. We thank Monique Baumann, Juliette Budge, Catherine Davis, Kathleen Eckhart, Mai Hashizume, Benjamin Johnson, Leah L. Jones, Linh Long, Elizabeth Krayk, Kohei Okada, Beth Parawan, Kristina Revello, Ileri Rivas, Ian Robinson, Birk Roseman, Michelle Sanford, Anna Smith, Josh Smith, Alexandra Vanderhoff, and Kelly Young.

We are especially moved by the generosity of one student in particular from the University of Nevada, Reno. Juliette Budge reminds us that *Amazonia in the Arts* is not just texts and films. To our surprise and delight, we opened a beat-up box which survived the U.S. Post Office and found a gift as priceless as what it represents. Juliette writes "I decided to make this quilt very intertwined and a bit chaotic and crowded because that is how the Amazon and the issues surrounding it appear to me...interdependent and inextricably bound to one another."

We will now pay thanks to the usual culprits behind any book; individuals who accepted our request to read this manuscript and offer comments. The mistakes spotted were both big and small, and always significant. Rather than accepting responsibility for any errors that remain, we will blame them on entropy; if it can drive evolution, surely it can keep any text from being error-free. We thank Paul Bayman, Mario Castillo, Newt Fawcett, Cheryl Glotfelty, Jerry Hoeg, and Denise Reghenzani.

Camilo Gomides

Joseph Henry Vogel

San Juan, Puerto Rico

May 2006

Epilogue

Ideas come in flashes as do turns of phrases. Many were jotted down while riding the bus, reading the newspaper, or simply waking up. Mistakes will happen when those ideas and phrases are integrated into a word-processed text already chock full of quotes. Given the controversial nature of our text, we thought it prudent to double-check every citation. *Gotcha* reviews are, to some extent, avoidable. So, we set aside the two weeks straddling the Memorial Day Weekend in May 2006 to go to New Orleans and use the Tulane University Library. The academic year was still in session due to the disruption caused by Hurricane Katrina.

Our intent was not devastation tourism. But one does not live in a cocoon. The levees broke on 29 August 2005 and now, eight months later, the tragedy is still a patchwork among the wards of New Orleans and along the Mississippi Gulf Coast. What we saw, what we touched, what we smelled cannot really be put into words. Pictures also do not suffice. Camilo felt that our writing about the devastation and even worse, photographing it, would be a species of *schadenfreude*. Joseph feels that not writing about it, not photographing it, is percepticide. A compromise was struck---we would mention the devastation but refrain from including any photograph.

In our bargain, mental images were not off bounds. Just a five-minute walk from our old residence in the Carrollton neighborhood of New Orleans, an entire block burned to the ground. Yellow brick stairs lead to porches that aren't there. And red brick chimneys reach to the sky as if pleading for help. The slate roofs that once concealed them are now just shards on the ground. Glistening in the sun is a claw-and-ball cast iron tub pitched at a 60° angle. The ensemble is worthy of Salvador Dalí. It is a war scene without the war. What didn't burn to the ground is an eerie reminder of lives interrupted. Clothes are strewn about. A bundle of *Times Picayune Newspaper* is dated, not August 2005, but 2002. A clothes bureau sits with its drawers open.

Honoré de Balzac said behind every great fortune, there is a crime. We can do him one better. Behind every natural disaster, there is man. The failure to maintain the levee system and the emergency *non*-response were Criminal Negligence writ large. Hurricanes like Katrina are foreseeable and were indeed foreseen. What do we conclude? Be it about the Amazon or New Orleans, any indulgence in percepticide brings just sorrow and death. Perhaps only art will let us see.

Camilo Gomides

Joseph Henry Vogel

June 5, 2006

Notes

Introduction

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Chapter One

- [1] Pedro Maligo, *Land of Metaphorical Desires: The Representation of Amazonia in Brazilian Literature* (New York: Peter Lang, 1998); Candace Slater, *Entangled Edens: Visions of the Amazon* (Berkeley: University of California Press, 2002).
- [2] E.O. Wilson lists the previous five mass extinctions “Ordovician, 440 million years; Devonian, 365 million years; Permian, 245 million years; Triassic, 210 million years; and [the] Cretaceous, 65 millions years [ago],” *The Diversity of Life* (New York: W.W. Norton, 1992), 29; Britaldo Silveira Soares-Filho, Daniel Curtis Nepstad, Lisa M. Curran, Gustavo Coutinho Cerqueira, Ricardo Alexandrino Garcia, Claudia Azevedo Ramos, Eliane Voll, Alice McDonald, Paul Lefebvre and Peter Schlesinger, “Modelling conservation in the Amazon basin.” *Nature* 440 (23 Mar 2006): 520-523.
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- [8] Edward O. Wilson, *Consilience: The Unity of Knowledge*. New York: Alfred A. Knopf, 1998), 44.
- [9] Quoted in Winkler (see n. 6).
- [10] Sven Wunder, *The Economics of Deforestation: The Example of Ecuador*. (New York: St Martin's Press, 2000).
- [11] Action is a core theme in the philosophy of Edward Abbey. "Those that I admire most in the conservation movement are those who act... One brave deed is worth a hundred books, a thousand theories, a million words." James Calahan, *Edward Abbey: A Life* (University of Arizona Press, 2001), 242.
- [12] Glotfelty, xx and xxi.
- [13] Quoted in Orr, (see n. 7), 151, originally from Page Smith, *Killing the Spirit: Higher Education in America* (New York: Viking, 1990), 7; Head, "The (im)possibility of ecocriticism," in Richard Kerridge and Neil Sammells (eds.), *27-39 Writing the Environment: Ecocriticism and Literature* (New York: Zed Books, Ltd. 1998), 29; Paul Wapner, "Leftist Criticism of 'Nature' Environmental Protection in a Postmodern Age," *Dissent* (Winter) 2003.
<http://www.dissentmagazine.org/issue/?issue=49>, accessed June 10, 2006;
Lawrence Buell, *The Environmental Imagination: Thoreau, Nature Writing, and the Formation of American Culture* (Cambridge, MA and London England: Harvard University Press, 1995), 430
- [14] Laurence Coupe (ed.), *The Green Studies Reader: From Romanticism to Ecocriticism* (London: Routledge, 2000), 302.

- [15] Paulo Freire, *The Pedagogy of the Oppressed* (New York: Seabury Press, 1970).
- [16] Freire would violate the American taboo against so vehemently expressed by Stanley Fish “[N]o idea belongs in the classroom if the point of introducing it is to recruit your students for the political agenda it may be thought to imply.” “Conspiracy Theories 101,” *The New York Times Week in Review*, July 23, 2006, 13.) Fish’s dictum is obviously true for a crude pamphleteer but subtly false for the sophisticated teacher. For the latter, the choice of ideas to be analyzed *is* a political agenda. Nowhere is this more evident than economic theory where mass extinction is marginalized. The impossibility of neutrality is merely honest: widespread hunger legitimized advocacy in Freire’s Brazil just as mass extinction legitimizes advocacy today.
- [17] Michael Soulé, “Mind in the Biosphere; Mind of the Biosphere” in Ed. Wilson, E.O. and Frances M. Peter (eds.), 465-480, *Biodiversity* (Washington, D.C.: National Academy Press, 1988), 468.
- [18] Junta Chairperson of Ecuador
["http://en.wikipedia.org/wiki/Lucio_Edwin_Guti%C3%A9rrez_Borb%C3%BAa"](http://en.wikipedia.org/wiki/Lucio_Edwin_Guti%C3%A9rrez_Borb%C3%BAa)
 \o "Lucio Edwin Gutiérrez Borbúa", lasted less than 24 hours on January 21, 2000; Rosalía Arteaga Serrano served as acting president for two days, from 9-11 February 1997; Abadalá (*el loco*) Jaime Bucaram Ortiz was president for six months, from 10 August 1996-6 February 1997.
http://en.wikipedia.org/wiki/President_of_Ecuador, accessed on 10 June 6, 2006.
- [19] Joseph Henry Vogel. "No abrir nuevas carreteras: una directriz práctica para aliviar la pérdida de biodiversidad en la Amazoníain" in Tania Ricardi (ed.), 443-461, *La economía ecológica: una nueva mirada a la ecología humana*. La Paz, Bolivia: CESU-UMSS/UNESCO, Plural Editores, 1999 and reprinted in Fander Falconí and Julio Oleas (eds.), *Economía Ecuatoriana* (Quito: FLACSO, 2004).
- [20] Garrett Hardin, *Living Within Limits: Ecology, Economics, and Population Taboos* (New York: Oxford University Press, 1993).
- [21] Glotfelty, xx.
- [22] Glen A. Love, "Revaluing Nature: Toward an Ecological Criticism," pp 225-240 in *The Ecocriticism Reader*, see n. 3, 237.

[23] A similar definition appears in Spanish in Camilo Gomides, *Ecocrítica a raíz de la deforestación amazónica* (PhD diss., Tulane University, 2003). The Spanish version was later translated into English for "Putting a New Definition of Ecocriticism to the Test," *ISLE* 13.1, Winter 2006, 13-23.

Chapter Two

[1] Ruth Scodel, *Credible Impossibilities: Conventions and Strategies of Verisimilitude in Homer and Greek Tragedy* (Germany: B.G. Teubner Stuttgart and Leipzig, 1999), 2.

[2] Shaoni Bhattacharya, "Destruction of Amazon rainforests accelerating" *New Scientist* 27 June 27, 2003. <http://www.newscientist.com/article.ns?id=dn3883>, accessed on June 10, 2006.

[3] See n. 1, 5.

[4] Theodosius Dobzhansky, "Nothing in Biology Makes Sense Except in the Light of Evolution." *The American Biology Teacher* 35 (1973): 125-129; David P. Barash and Nanelle Barash, "Biology as a Lens: Evolution and Literary Criticism." *The Chronicle of Higher Education* October 18, 2002: B7-9., B9.

[5] This is also the opinion of a growing number of ecocritics. It is a principal theme in Glen A. Love, *Practical Ecocriticism: Literature, Biology, and Environmentalism* (Charlottesville: University of Virginia Press, 2003) and the foundation for Joseph Carroll's *Evolution and Literary Theory* (Columbia: University of Missouri Press, 1995).

[6] Wilson, "Introduction: Life is a Narrative" in E.O. Wilson and Burkhard Bilger (eds), xii-xx, *The Best American Science and Nature Writing 2001* (New York: Houghton Mifflin Company, 2001), xviii.

[7] Wilson, *Biophilia* (Cambridge, Massachusetts: Harvard University Press, 1984), 1.

[8] Rachel Carson, *Silent Spring* (New York: Fawcett Crest, 1962).

[9] Hardin, 299 (see chap. 1, n. 18).

[10] *Ibid*, 300.

- [11] Luiz Carlos L. Silveira, Dora Fix Ventura e Maria da Conceição N. Pinheiro, Toxicidade Mercurial - Avaliação Do Sistema Visual Em Indivíduos Expostos A Níveis Tóxicos De Mercúrio, *Ciência e Cultura* vol.56 no.1 São Paulo Jan./Mar. 2004, http://cienciaecultura.bvs.br/scielo.php?pid=S0009-67252004000100025&script=sci_arttext, accessed on June 10, 2006.
- [12] Edward Abbey, *Desert Solitaire* (Tucson: University of Arizona Press, 1988); quoted in Don Scheese, "Desert Solitaire: Counter-friction to the Machine in the Garden," in *The Ecocriticism Reader: Landmarks in Literary Ecology*, 303-322,(see chap. 1, n. 3), 304; Stephen Trimble, *Words from the Land: Encounters with Natural History Writing* (Salt Lake City: Gibbs M. Smith, 1988), 27; Scheese, 318; Joseph Sax, *Mountains without Handrails: Reflections on the National Parks* (Ann Arbor: University of Michigan Press, 1980), 15; The American Heritage[®] Dictionary of the English Language: Fourth Edition, 2000.
- [13] Some may fervently disagree with our assessment, noting that Abbey's *oeuvre* "activated more than a generation's worth of activists toward a radical new brand of direct action in defense of wilderness." Calahan, (see chap. 1, n. 11), 274. Therein lies the problem: the scale of the ecological holocaust demands that a work activate people who would not otherwise be "activists."
- [14] Soulé, (see chap. 1, n. 15), 468.
- [15] Sandra Blakeslee, "Drought Unearths a Buried Treasure," *New York Times*, November 2, 2004.
- [16] Donella H. Meadows, Dennis L. Meadows, Jørgen Randers, and William W. Behrens III, *The Limits to Growth* (New York: University Books, 1972).
- [17] Emily Dickinson,
http://en.wikisource.org/wiki/Tell_all_the_Truth_but_tell_it_slant_-- accessed on May 30 2006.

- [18] Gilberto Freyre, *Casa-Grande e Senzala* (Rio de Janeiro: José Olympio, 1933); *The Master and the Slaves*, trans. Samuel Putnam (New York: Knopf, 1946).
- [19] Wilson, (see chap 1, n. 2), 280.
- [20] Shilts, *And the Band Played On: Politics, People and the AIDS Epidemic* (New York: St. Martin's Press, 1987).
- [21] NPR Gay Marriage Laws Interactive Map. Anti-Gay Marriage Initiatives Across the U.S. National Public Radio. <http://www.npr.org/news/specials/gaymarriage/map/>, accessed on June 10, 2006.
- [22] Stowe writes: "we perfectly screamed and held our sides while we relieved ourselves of the pent up laughter that had almost been the cause of death" and "I had a real funny interview with the President introduced by Henry Wilson the particulars of which I will tell you" Hedrick, see Introduction, n. 2, 306. As for the legend regarding the quip, see <http://www.harrietbeecherstowe.org/life/>, accessed on May 30, 2006.
- [23] Florine Thayer McCray, *The Life Work of the Author of Uncle Tom's Cabin* (New York: Funk & Wagnalls), 118-119.
- [24] Frederick Douglass, *Autobiographies: Narrative of the Life; My Bondage and My Freedom; Life and Times*, edited by Henry Louis Gates, Jr. (New York: Library of America, 1994); Toni Morrison, *Beloved* (Philadelphia: Chelsea House Publishers, 1999); Edward P. Jones, *The Known World* (New York: Amistad), 2003.
- [25] Other rationales can be found in the essay by Lennard J. Davis, "The Value of Teaching from a Racist Classic" *The Chronicle Review*, May 19, 2006, B9-10. Prof. Davis painstakingly weighs the pros and cons of *Heart of Darkness* by Joseph Conrad and chooses to eliminate the book.
- [26] *Webster's New Twentieth Century Dictionary Unabridged*, 1980.
- [27] Alice C. Crozier, *The Novels of Harriet Beecher Stowe* (New York: Oxford University Press, 1969), 35; *Ibid*, 4; *Ibid*, 6-7.
- [28] Joan Hedrick, *The Oxford Harriet Beecher Stowe Reader* (New York: Oxford University Press, 1999), 406; *Ibid*, bookjacket.

- [29] We refer to literary critics from the structuralist camp; those from cultural studies should be more sympathetic.
- [30] Quoted in Scheese, (see chap. 1, n. 3), 304.
- [31] Hedrick, (see Introduction, n. 2), 207.
- [32] Crozier, (see n.25), 3.
- [33] Cathrene, P. Gilbertson, *Harriet Beecher Stowe* (New York: D. Appleton-Century Co., Inc., 1937), 172.
- [34] Hedrick, (see Introduction, n. 2), 231.
- [35] Ellen Moers, *Harriet Beecher Stowe and American Literature* (Hartford, CT: The Stowe-Day Foundation, 1978), 7.

Chapter Three

- [1] Ramón López, *Policy Instruments and Financing Mechanisms for the Sustainable Use of Forests in Latin America*, No. ENV-106 (Washington, D.C.: InterAmerican Development Bank, 1996), 17.
- [2] R. Repetto and M. Gillis, *Public Policies and the Misuse of Forest Resources* (Cambridge: World Resource Institute, 1988).
- [3] The idea of a cartel over genetic resources is implied in Joseph Henry Vogel, *Genes for Sale* (New York: Oxford University Press, 1994) and becomes explicit in Vogel, “White Paper: The Successful Use of Economic Instruments to Foster the Sustainable Use of Biodiversity: Six Cases from Latin America and the Caribbean,” discussion paper for the *Summit of the Americas on Sustainable Development*, Santa Cruz de la Sierra, Bolivia, 6-8 December 1996, *Biopolicy Journal*, volume 2, Paper 5 (PY97005), 1997. URL-<http://www.bdt.org.br/bioline/py>. The institutional dimensions were worked out in Vogel, (ed), *The Biodiversity Cartel: Transforming Traditional Knowledge into Trade Secrets*, (Quito: CARE, 2000) and Vogel “Reflecting Financial and other Incentives of the TMOIFGR: The Biodiversity Cartel,” in Manuel Ruíz (ed.), *A Moving Target: Tracking and Monitoring of the International Flow of Genetic Resources*, IUCN-Environmental Law Center, Bonn, Germany. 2006.

- [4] Alan Randall, “What Mainstream Economists Have to Say about the Value of Biodiversity” in E.O. Wilson and Frances Peter (eds), *Biodiversity* (Washington, D.C.: National Academy Press, 1988) 217-223, 219.
- [5] As of this writing, the most ambitious endeavor to measure the value of biodiversity is the Millenium Ecosystem Assessment, costing some \$17 million and involving 1300 scientists from around the world. The influential magazine *The Economist* considers it “an important step forward for economists and environmentalists.” In light of the monies disbursed, we agree in *sensu stricto*. We would only add that it is an important step backward for the environment. “Environmental Economics: Are you Being Served?” <http://www.theeconomist.com> 21 April 2005, accessed on June 17, 2006. See also, Lila Guterman, *The Chronicle of Higher Education*, “Putting a Price Tag on the Planet” April 7, 2006.
- [6] Joan Robinson, *1951-1980. Collected Economic Papers. Six Volumes Volume II* (Cambridge, MA: MIT Press), 17.
- [7] See note 1, 3. For a good review of cost-benefit analysis in practice, see Frank Ackerman and Lisa Heinzerling *Priceless: On Knowing the Price of Everything and the Value of Nothing* (New York: New Press, 2004).
- [8] Supply-demand curves which can be found in the graph on page 4 of López, n.1.
- [9] Robert H. MacArthur and Edward O. Wilson *The Theory of Island Biogeography* (Princeton: Princeton University Press, 1967).
- [10] David Ehrenfeld. “Why Put a Value on Biodiversity?” in Wilson, E.O. and Frances M. Peter, *Biodiversity* (Washington, D.C.: National Academy Press, 1988), 212-216, 213.
- [11] “I WOULD TEN thousand times rather that my children should be the half-starved paupers of Ireland than to be the most pampered among the slaves of America” wrote Harriet Jacobs in her narrative *Incidents in the Life of a Slave Girl* (New York: New American Library, 2000; Boston: Published for the Author, 1861), 30.
- [12] See n. 11, 216.
- [13] Crozier, (see chap 2, n. 25), 16.
- [14] “José María Figueres Discurso de Clausura del Sr. Presidente de la República Ing. José María Figueres (1994)” in René Castro, René (ed.), *Del Bosque a la Sociedad:*

Un Nuevo Modelo Costarricense de Desarrollo en Alianza con la Naturaleza (Costa Rica: Presidencia de la República, 1996), 185-202.

[15] George Washington Carleton, *The Suppressed Book about Slavery!* Introd. William Loren Katz. New York: Arno Press and New York Times, 1864, 1968) 211.

[16] Ehrenfeld, see n. 11, 213.

[17] The five types of capital are human, natural, financial, social and physical, according to John Farrington, Diana Carney, Caroline Ashley and Cathryn Turton.

“Sustainable Livelihoods In Practice: Early Applications Of Concepts In Rural Areas” *Natural Resource Perspectives* (Number 42, June 1999),

<http://www.odi.org.uk/NRP/42.html>, accessed on June 19, 2006.

[18] About the same time that cliometrics was gaining traction, so too was the work of Gary Becker. As evidenced in the first two hundred words of Becker’s “Human Capital,” instruction will be conflated with education, *The Library of Economics and Liberty: The Concise Encyclopedia of Economics*.

<http://www.econlib.org/library/Enc/HumanCapital.html>., accessed on June 19,2006.

[19] As Fogel and Engelman elucidate historical aspects of slavery through economic theory, they reify that theory onto historical interpretation. The emotional dimensions of human capital can be gleaned from the slave narrative of Harriet Jacobs “The old sinner was politic. The application of the lash might have led to remarks that would have exposed him in the eyes of his children and grandchildren. How often did I rejoice that I lived in a town where all the inhabitants knew each other!” (see n. 12), 35. What social opprobrium exists for mistreatment of physical capital? Who changes the oil on their car for fear of what the neighbors will think?

[20] Douglass, (see chap. 2 n. 22), title page. Inside the text is a wealth of evidence to substantiate our point. “Nature has done almost nothing to prepare men and women to be either slaves or slaveholders. It was no easy matter to induce [Mrs. Auld, his owner] to think and to feel that the curly-headed boy, who stood by her side, and even leaned on her lap; who was loved by little Tommy and who loved little Tommy in turn; sustained to her only the relation of a chattel. I was *more*

- than that, and she felt me to be more than that. How could she, then treat me as a brute, without a mighty struggle with all the noble powers of her own soul. That struggle came, and the will and power of the husband was victorious. Her noble soul was overthrown; but, he that overthrew it did not, himself, escape the consequences. He, not less than the other parties, was injured in his domestic peace by the fall.” (ibid, 122).
- [21] The classification of everything as capital hybridizes The Fallacy of Authority (Appeal) with that of Misplaced Concreteness (Hypostatization). For a review of the fallacies of logic, <http://www.siskiyous.edu/class/phil4online/fallacies.html>, accessed on June 19, 2006.
- [22] Wilson refers enthusiastically to the key elements of “natural capital” in chapter 7 entitled. “The Solution,” *The Future of Life* New York: Vintage Books, 2002), 149.
- [23] E.O. Wilson, “The Current State of Biological Diversity,” in E.O. Wilson and Frances M. Peter (eds), *Biodiversity* (Washington, D.C.: National Academy Press, 1988), 3-16 16.
- [24] John Rawls, *A Theory of Justice* (Cambridge, Mass.: Belknap Press of Harvard University Press, 1999), 42.
- [25] Garrett Hardin, “The Tragedy of the Commons,” *Science*, 162 (1968), 1243-1248.
- [26] Wilson, (see chap. 1, n. 2).
- [27] Herschel Elliot and Richard D. Lamm. “A Moral Code for a Finite World,” *The Chronicle of Higher Education*, November 15, 2002, B9.
- [28] Lula wasted no time in backtracking. In his inaugural address, he dampened the hopes of the very environmentalists who helped elect him. We must keep our many and legitimate social aspirations under control, so that they can be fulfilled at the right pace and at the right time. David Glenn, Paving to save the rainforest, *The Chronicle of Higher Education*, February 7, 2003.
- [29] See, for example, Philip M. Fearnside, *Human Carrying Capacity of the Brazilian Rainforest* (New York: Columbia University Press, 1986) or S. B. Hecht and A. Cockburn *The Fate of the Forest: Developers, Destroyers and Defenders of the Amazon* (New York: Verso, 1989). To see how the causation persists into the new

- millenium, see Fearnside, “Avança Brasil: environmental and social consequences of Brazil's planned infrastructure in Amazonia,” *Environmental Management*, 30 (6), Dec 2000,,735-47.
- [30] Mainstream economists will protest our omission of *The Dynamics of Deforestation and Economic Growth in the Brazilian Amazon* (Cambridge University Press, 2002) by Lykke E. Andersen, Clive W. J. Granger, Eustáquio J. Reis, Diana Weinhold, and Sven Wunder. According to the authors, paving dirt roads in the Amazon can actually reduce pressure on the forest through intensifying farming activities in remote settlements. Our disagreement can be found in their title: dynamics. The relevant time framework for biodiversity conservation is evolutionary (1000s of years) whereas the authors base their conclusions on a time period barely longer than one human generation (1970-1996). The impacts of paved roads over evolutionary time will derive from expanding populations, rising affluence, and new technologies which enable tropical agriculture *inter alia*.
- [31] E.O. Wilson, Introduction, *Best Science*, Supra (2000 xvi-xvii).
- [32] John Muir, John, *A Thousand-Mile Walk to the Gulf* (New York: Houghton Mifflin Company, 1916), 60.
- [33] Leon Festinger, *A Theory of Cognitive Dissonance*.(Stanford, Calif: Stanford University Press, 1957).
- [34] Carleton, see n. 15, 384.
- [35] Lisa Mintz Messinger. *Georgia O'Keefe* (Londong: Thames & Hudson, 1991), 45.
- [36] Prejudice in the North is illustrated in the first novel ever published by an Afro-American woman, *Our Nig; or, Sketches from the Life of a Free Black* by Harriet E. Wilson in 1859, re-published by Henry Louis Gates, Jr. with a preface, introduction and notes (New York: Vintage Books, 2002).
- [37] Successful challenges to the verisimilitude of a work can dislodge it from the national psyche. For example, generations of Americans embraced David O. Selznick film adaptation of Margaret Mitchell's novel *Gone with the Wind* "When civil-rights activists in the 1960s denounced *Gone With the Wind* as romantic fiction, they infuriated many people, who resented 'attacks' on their beloved

narratives of Southern life. But waiting in acid-free boxes in the National Archives were the 1,100 cubic feet of the records of the Freedmen's Bureau---the military agency that managed the antebellum transition from slavery to freedom. In those records of marriages, land transfers, interviews, complaints, and hearings lay the history of violence and misery, of the paths out of slavery that thousands of men and women took, with and without white allies. As historians have delved into those records, Tara has crumbled." Linda K. Kerber, "Protecting the Nation's Memory," *The Chronicle Review*, May 19, 2006, B20.

[38] Karl Popper. *Conjectures and Refutations: The Growth of Scientific Knowledge* (New York: Basic Books, 1962), 232-233.

[39] *Ibid.*, 232.

[40] David G. Campbell. *A Land of Ghosts: the braided lives of people and the forest in far western Amazonia* (Boston: Houghton Mifflin Company, 2005); Elizabeth Royte, 'A Land of Ghosts': Across the River and Into the Trees, *The New York Times Book Review*, April 10, 2005,18

[41] Wunder, (see chap. 1, n. 10), 83.

[42] *Ibid.*, 49.

[43] *Ibid.*, 161-162.

[44] Noam Chomsky. *Hegemony or Survival* (New York: Henry Holt and Company, 2004), 43.

[45] Diana Taylor, Percepticide URL: abstracted from The Dirty War.

<http://hemi.nyu.edu/cuaderno/politicalperformance2004/totalitarianism/WEBSITE/texts/percepticide.htm>, accessed on June 20, 2006.

Chapter Four

- [1] William Faulkner, *Requiem for a Nun* (New York: Random House, 1951), 92.
- [2] Thomas K. Rudel and Bruce Horowitz, *Tropical Deforestation: Small Farmers and Land Clearing in the Ecuadorian Amazon* (New York: Columbia University Press, 1993).
- [3] Miguel Altieri, *Agroecology: The Science of Sustainable Agriculture* (Boulder: Westview Press, 1995).
- [4] A generation before “behavioral economics” would earn others the Nobel Prize, Martin Hollis and Edward J. Nell had exposed the illogical foundations of mainstream thought. See *Rational Economic Man: A Philosophical Critique of Neo-Classical Economics* (New York: Cambridge University Press, 1975), 61.
- [5] Malte Faber, Horst Niemes and Gunter Stephan, *Entropy, Environment and Resources: An Essay in Physio-Economics* (Berlin: Springer, 1987). For the interface of thermodynamics with economics, see Joseph Henry Vogel, "Uninvited Guests: A Thermodynamic Approach to Resource Allocation", *Prometheus: The Journal of Issues in Technological Change, Innovation, Information Economics, Communication and Science Policy*, vol. 9, no. 2, December 1991, 332-345 and "Entrepreneurship, Evolution, and the Entropy Law," *The Journal of Behavioural Economics* vol. 18, issue no. 3, 1989, pp. 185-204. For an updated thermodynamic treatment that includes the psychological, see Jing Chen, *The Physical Foundation of Economics: An Analytical Thermodynamic Theory* (World Scientific Publishing, 2005).
- [6] Wunder, (see chap 1, n. 10), 82.
- [7] Paul Samuelson, *The Foundations of Economic Theory* (Cambridge: Harvard University Press, 1947), 223.
- [8] E. O. Wilson, “Biophilia and the Conservation Ethic.” Pp 31-41 in Stephen R. and Edward O. Wilson (ed). *The Biophilia Hypothesis* (Washington, D.C.: Island Press, 1993), 33-34.
- [9] As mentioned in both Introduction and Chapter Three, valuation is not confined to just the adherents of neoclassical economics, but also includes prominent ecological economists.
- [10] MacArthur and Wilson, (see chap. 3, n. 9).

[11] Wilson, (see chap 1, n. 8), 219.

[12] Miguel Ángel Quemain, “No Soy un Escritor Chileno,” *Quimera* 121 (1993), 21.

[13] *Ibid*, 23-24.

Chapter Five

[1] *The New Journalism* by Tom Wolfe, (New York: Harper and Row, 1973) laid the stage for narrative-driven long-form nonfiction. Robert S. Boynton calls the following act in American literary evolution *The New New Journalism* (New York: Vintage Books, 2005).

[2] See Andrew Revkin, “Biologists Sought a Treaty; Now they Fault it” *The New York Times*, May 7, 2002: D1 and analysis of what’s wrong with such journalism in Vogel, (see chap. 3, n. 3).

[3] Robert Louis Stevenson, “Father Damien: An Open Letter to the Reverend Dr. Hyde of Honolulu.” Sydney February 25, 1890, 3, <http://robert-louis-stevenson.classic-literature.co.uk/father-damien/>, accessed on June 20, 2006.

[4] Andrew Revkin, *Tempo de Queimada, Tempo de Morte: O Assassinato de Chico Mendes e a luta em prol da Floresta Amazônica*. Trans. Wilma Freitas Ronald de Carvalho. (Rio de Janeiro, Livraria Francisco Alves Editora S/A, 1990), 125.

[5] Alistair Hennessy, *The Frontier in Latin American History* (Albuquerque: University of New Mexico Press, 1978), 12.

[6] Wunder 2000, (see chap. 1, n. 10), 51.

[7] William Sunderland, “A model for reducing poverty and sustaining forests” http://www.cifor.cgiar.org/docs/_ref/publications/newsonline/36/forest_cover.htm, accessed on June 13, 2006.

[8] C. Peters, A.Gentry and R. Mendelsohn, “Valuation of an Amazon Rainforest.” *Nature* 339 (1989): 655-656; Douglas Southgate, *Alternatives for Habitat Protection and Rural Income Generation*. No. Env-107. Washington D.C.: InterAmerican Development Bank, 1997.

[9] Joseph Page, *The Brazilians* (Reading, MA: Perseus Books, 1995), 11.

Chapter Six

- [1] Pedro Maligo, *Land of Metaphorical Desires: The Representation of Amazonia in Brazilian Literature* (New York: Peter Lang, 1998), 55.
- [2] Ellen Spielmann, “O Antropólogo como escritor.” Ed. Darcy Ribeiro, *Maira*, edição especial comemorativa de 20 anos da obra. (Rio de Janeiro: Record, 1996), 423-425.
- [3] Popper, (see chap 3, n. 37).
- [4] Parini, “William Faulkner: ‘Not an Educated Man’” *The Chronicle Review*, November 26, 2004, B7.
- [5] Luzia de Maria, “O Triunfo da Vida” Luiza de Maria. Ed. Darcy Ribeiro, *Maira*. Edição especial comemorativa de 20 anos da obra. Rio de Janeiro: Record, 1996, 402.
- [6] From William Faulkner's speech at the Nobel Banquet at the City Hall in Stockholm, December 10, 1950. <http://nobelprize.org/literature/laureates/1949/faulkner-speech.html>, accessed on June 20, 2006.
- [7] William Faulkner, *The Sound and the Fury* (New York: Vintage Books, 1956), 409-411.
- [8] Faulkner scholars may point out that The Appendix was only first included in the Modern Library edition of 1946, some thirty years before the first publication of *Maira*.
- [9] From Ernest Hemingway's speech at the Nobel Banquet at the City Hall in Stockholm, December 10, 1954 and read by John C. Cabot <http://nobelprize.org/literature/laureates/1954/hemingway-speech.html>, accessed on June 20, 2006.
- [10] Ribeiro, Darcy. Introdução. Ed. Darcy Ribeiro, *Maira*, edição especial comemorativa de 20 anos da obra (Rio de Janeiro: Record, 1996), 22.
- [11] Hedrick, (see Introduction, n. 2), 332.
- [12] Charles Darwin, Introduction by Walter Sullivan, *The Voyage of the Beagle* (New York: Nal Penguin, Inc., 1972 [1836]), 16.
- [13] Ibid, 436.
- [14] Bertrand Russell, *In Praise of Idleness and Other Essays* (New York: W.W. Norton & Co., 1935), 14.

- [15] E.F. Schumacher, *Small is Beautiful: Economics as if People Mattered* (New York: Harper & Row, Publishers, Inc., 1973), 52.
- [16] Faulkner, n. 6.
- [17] Roger S. Ulrich, "Biophilia, Biophobia, and Natural Landscapes," in Stephen R. Kellert and Edward O. Wilson (eds) *The Biophilia Hypothesis* (Washington, D.C.: Island Press, 1993), 73-137, 76.
- [18] Ibid., 75.
- [19] Judith H. Heerwagen and Gordon H. Orians, "Human, Habitats and Aesthetics" in Kellert and Wilson, 138-172, *ibid* 161.
- [20] David Attenborough,. Foreward in Mark Collins, *The Last Rain Forests: A World Conservation Atlas* (New York: Oxford University Press, 1990), XX.
- [21] P.R. Ehrlich, P. R. and J.P. Holdren, "Impact of Population Growth," *Science* 171 (1974): 1212-17. See also Paul R. Ehrlich and Anne H. Ehrlich, *The Population Explosion* (New York: Simon and Schuster, 1990); Garrett Hardin, (see chap. 1, n. 18) 202; E.O. Wilson, *Consilience*, (see chap. 1, n. 8) 282.
- [22] See the Official Site of the Darcy Ribeiro Foundation <http://www.fundar.org.br>.
- [23] Moacir Werneck de Castro, "Um Livro-Testemunho." Ed. Darcy Ribeiro, *Maira*, edição especial comemorativa de 20 anos da obra. Rio de Janeiro: Record, 1996, 391-392, quote from page 391.
- [24] Parini, see n. 4.
- [25] http://www.fundar.org.br/darcy_aprecia.htm, accessed on June 13, 2006.
- [26] Ibid.

Chapter Seven

- [1] Jean Franco, "High-tech Primitivism," in John King, Ana L. López, and Manuel Alvarado (eds) *Mediating Two Worlds: Cinematic Encounters in the Americas* (London: British Film Institute. 1993), 81-94, 89; Brian Webster, "The Emerald Forest" *Apollo Guide Review*. http://www.apolloguide.com/mov_fullrev.asp?CID=2871&Specific=791, accessed on June 20, 2006.

- [2] See the official website for the Hackettstown Free Public Library, Hackettstown, NJ. Under the FAQ link is another “Jenny Jump”
http://www.apolloguide.com/mov_fullrev.asp?CID=2871&Specific=791. For the park,
<http://www.njskylands.com/pkjennyj.htm>, accessed June 20, 3006.
- [3] Article 33 of Convention (IV) relative to the Protection of Civilian Persons in Time of War (Geneva, 12 August 1949) prohibits collective punishment: “No protected person may be punished for an offence he or she has not personally committed. Collective penalties and likewise all measures of intimidation or of terrorism are prohibited.”
<http://www.icrc.org/ihl.nsf/FULL/380?OpenDocument>, accessed on July 29, 2006.
- [4] Paradox: If sparkling wine that does not originate in Champagne, France, cannot be called champagne, why can film directors deceive millions of people regarding location? A misinformed choice by a tourist is, in dollars and cents, a decision at least two orders of magnitude greater than a misinformed choice over sparkling wine (e.g., \$10 for a drinkable bottle of champagne versus \$1000 for a cheap trip to the Amazon). Why hasn't this occurred to the well-paid technocrats at the World Intellectual Property Organization (WIPO) in Geneva, Switzerland? Paradox resolved: the privatization of benefits and the socialization of costs. WIPO is thunderous when third world peoples pirate the artificial information of transnational companies but silent when transnational companies pirate the natural information of third world peoples. Like the remedies to prevent biopiracy/biofraud, solutions to prevent geopiracy also exist and are assiduously ignored. A non-discriminatory application of economic theory suggests that a rating system be imposed on big-budget movies which includes a component for truthfulness with respect to location. See Joseph Henry Vogel, “The Economic Justification for Ecocritical Certification of Big-Budget Movies (A Means to Finance a Center for Ecocriticism?” *Proceedings of the 2006 Meeting of the Latin American Studies Association* (San Juan, Puerto Rico March 15-18, 2006).
- [5] Carleton, (see chap 3 n. 15), 149.

Chapter Eight

- [1] Brian McFarlane, *Novel to Film: An Introduction to the Theory of Adaptation* (New York: Oxford University Press, 1996), 9.
- [2] Peter Matthiessen, *At Play in the Fields of the Lord*, (New York: Bantam Books, 1965).
- [3] Neil Okrent, "At Play in the Fields of the Lord: An Interview with Hector Babenco" *Cineaste: America's Leading Magazine on the Art and Politics of the Cinema* New York 19:1 (1992), 44.
- [4] Ibid.
- [5] Todd Rendleman, "Evil' Images in At Play in the Fields of the Lord: Evangelicals and Representations of Sexuality in Contemporary Film" *Velvet Light Trap* (VLT) 46 (2000), 26.
- [6] Okrent,, 45.
- [7] Carl Sagan, *The Demon-Haunted World: Science as a Candle in the Dark* (New York: Random House, 1995)123; Wilson, (see chap. 1 n. 7), 502.
- [8] The wealthy Moorish father Agimorato could not conceive that his daughter, Zoraida, "the handsomest maid in all Barbary," could possibly be interested in one of his captive Spanish slaves. She is allowed to freely socialize with them which would have been unthinkable had they been Moorish men. Not once does it cross his mind that the daughter could be attracted to them. Little does he know that Zoraida is a secret Christian, having been converted to Lela Marien (mother Mary) by a female house servant. As a Christian, Zoraida avails herself to the captain among the male slaves. Suffice it to say that Leslie's seemingly contradictory behaviour in *At Play* is consistent with broad patterns of evolutionary psychology whose reception among audiences has resonated over four centuries of world literature. Camilo Gomides, "Consilience of Human Evolution and a *Seemingly* Trivial Detail in the 'The Story of the Captive' by Cervantes," *OMETECA* 9 (2005), 71-80.

- [9] Nancy Scheper-Hughes. *Death Without Weeping: the Violence of Everyday Life in Brazil* (Berkeley: University of California Press, 1992).
- [10] Cathrene P. Gilbertson, *Harriet Beecher Stowe*. (New York: D. Appleton-Century Co., Inc., 1937), 153.
- [11] Entry for Anne Darwin from Wikipedia, http://en.wikipedia.org/wiki/Anne_Darwin, accessed on June 20, 2006.
- [12] Ibid, Rendelman, n. 5, 26; *ibid*, 26; *ibid*, 28; *ibid* 26.
- [13] *Ibid*, 32.
- [14] *Ibid*; *ibid* 36.
- [15] *Ibid*, 37.
- [16] Wilson muses “*Accept our apologies and this audiovisual library of that illustrates the wondrous world that used to be.*” *The Future of Life*; (see chap. 3, n.22), 78.

Chapter Nine

- [1] Dean Baker, Gerald Epstein, and Robert Pollin, *Globalization and Progressive Economic Policy* (Cambridge: Cambridge University Press, 1998), 5.
- [2] Domingo Alzugaray and Cátia Alzugaray. Ed. *Isto é Brasil 500 anos: Atlas Histórico* (São Paulo, Brasil: Grupo de Comunicação Três S/A.,1998).
- [3] *Ibid*, 195.
- [4] *Ibid*, 197.
- [5] *Ibid*, 174.
- [6] Robert Stam, João Luiz Vieira, and Ismail Xavier. 1995. Part V “The Shape of Brazilian Cinema in the Postmodern Age” pp. 385-472 in Johnson, Randal and Robert Stam (eds). *Brazilian Cinema*, expanded edition (New York: Columbia University Press), 422.
- [7] Julianne Burton, (ed). “Chapter 12: Carlos Diegues (Brazil): The Mind of Cinema Novo” in *Cinema and Social Change in Latin American: Conversations with Filmmakers* (Austin: University of Texas Press, 1986), 171-179,177.
- [8] American students from the pilot course (Spring 2006), thought the birth was symbolic of overpopulation. We disagree. Had Altamira been the tenth child or even the third, it could

be symbolic of overpopulation. She is the first born to parents of normal reproductive age. Five years later in Brasilia, she still has no siblings. The undue attribution to “P” in Ehrlich’s I=PAT is worthy of self-reflection. See chap 6, n.21.

[9] As argued in Chapter 3, the synchrony of the serialization of *Uncle Tom’s Cabin* was fundamental to its success as an agent of change. In the Brazil of the 1970s, the synchrony of TV programming became fundamental to the homogenization of the popular culture.

[10] Entry for Jari Project in *Wikipedia*, http://en.wikipedia.org/wiki/Jari_project, accessed on June 20, 2006.

Chapter Ten

[1] The physical law that cuts through time and space is the Entropy Law. For a user-friendly overview, see Tim Thompson, “The Definitions of Entropy” <http://www.tim-thompson.com/entropy1.html>, accessed June 15, 2006.

[2] See Frances Moore Lappé, Joseph Collins, and Meter Rosset *World Hunger: Twelve Myths*, 2nd edition. (New York: Grove Press, 1998)

[3] Wilson, chap 3 n. 22, 152.

[4] Nobel Peace Laureate Elie Wiesel is the conscience of such sentiment. A recurrent theme in his early works is the denial of the atrocity in the making by its soon-to-be victims. See *Night* (New York: Hill and Lang, 1958) and *The Gates of the Forest* (New York: Holt, Rinehart and Winston 1966).

[5] Identifying puppets and puppeteers keeps causality straight which is especially important for undercover operations. According to Ron Suskind’s *The One Percent Doctrine* (New York: Simon & Schuster, 2006), Dick Cheney has been nicknamed Edgar over at the

CIA. Edgar Bergen (1903-1978) was the ventriloquist made famous by the pine-headed dummy Charlie. CIA operatives refer to George W. Bush as Charlie.

[6] Joseph Henry Vogel "Evolution as an Entropy Driven Process: An Economic Model," *Systems Research* vol. 5, issue no. 4 (1988), 299-312.

[7] This literature blossomed in the 1980s and then stalled. See Bruce H. Weber, David J. Depew, and James D. Smith (eds.). *Entropy, Information, and Evolution: New Perspectives on Physical and Biological Evolution* (Cambridge: The MIT Press, 1988), Jeffrey Wicken, *Evolution, Thermodynamics, and Information: Extending the Darwinian Program* (New York: Oxford University Press, 1987), Daniel R. Brooks and E.O. Wiley, *Evolution as Entropy: Toward a Unified Theory of Biology* (Chicago: The University of Chicago Press, 1988).

[8] Stephen Jay Gould, *The Mismeasure of Man*. (New York: W.W. Norton & Co., 1981).

[9] For a synopsis of the criticism against Gould's protests, see the entry "The Mismeasure of Man" in Wikipedia

http://en.wikipedia.org/wiki/The_Mismeasure_of_Man#Criticisms.

[10] E.O. Wilson dedicates Chapter 17 of his autobiography to "The Sociobiology Controversy": "The serious literature was in fact always strongly disposed toward human sociobiology. In the nearly twenty years since 1975, more than 200 books have been published on human sociobiology and closely related topics. Those more or less in agreement outnumber those against by a ratio of twenty to one." *The Naturalist* (Washington, D.C.: Island Press, 1994), 331.

[11] The neologism is defined as "Af-flu-en-za n. 1. The bloated, sluggish and unfulfilled feeling that results from efforts to keep up with the Joneses. 2. An epidemic of stress, overwork,

waste and indebtedness caused by dogged pursuit of the American Dream. 3. An unsustainable addiction to economic growth. 4. A television program that could change your life.” <http://www.pbs.org/kcts/affluenza/>, accessed on June 20, 2006.

[12] Post-impeachment, there are eight memoirs spanning 1978-1994 and thousands of pages. See http://en.wikipedia.org/wiki/Richard_Nixon#Other_Memoirs.

[13] Fidel Castro, *History Will Absolve Me*, Oral defense in trial of 1953 and translated from the Spanish by Pedro Álvarez Tabío & Andrew Paul Booth, <http://www.marxists.org/history/cuba/archive/castro/1953/10/16.htm>, accessed on June 20, 2006.

[14] Fredrick Douglass’ “Letter to his Old Master” inspires us to make status the control variable. Mr. Auld will be forever remembered for his “wickedness and cruelty” which Douglass transformed into “a weapon with which to assail the system.” See chap. 2, n. 22, 324, 325.

[15] Kerridge, Richard. “Ecothrillers: Environmental Cliff Hangers”pp 242-249 in Coupe (ed), chap 1, n. 13, 244-245.

[16] “Bum’s rush” is perhaps an ungainly metaphor given Lindsey’s obesity and Bush’s famed intolerance for the overweight. “White House aides made a point of telling reporters that Mr. Bush complained about Mr. Lindsey's failure to exercise.” Paul Krugman, “Secretary, Protect Yourself” *The New York Times*, June 2, 2006, 21.

[17] Nicholas Georgescu-Roegen, “Energy and Economic Myths” *Southern Economic Journal*, 41, no. 3, January 1975 <http://dieoff.org/page148.htm>, accessed 30 May 2006.

[18] Darwin's famous last words in *On the Origins of Species*, ([1859]) Baltimore: Penguin Books, 1968), 460.

[19] Al Gore's 2006 documentary *An Inconvenient Truth* misses a scenario too apocalyptic for his audiences to take seriously: human extinction. Nevertheless, societies across human pre-history have disappeared totally leaving ghostly reminders. In *Collapse: How Societies Choose to Fail or Succeed* (New York: Viking, 2005), Jared Diamond shows that the reason for disappearance has been environmental. In a globalized world, the society threatened would be the globe. Protection of the Amazon is an insurance against human extinction. Isolated tribes are most likely to survive a global collapse.

[20] The astute reader will see that we do not restrict the protection of the natural forests to just those of the Amazon basin. Protecting only the Amazonian forests will enhance pressure on other natural forests left unprotected in the countries of the Amazon basin. Some of those forests, like the Chocó Regions of Colombia and Ecuador, or the Atlantic Forests of Southeastern Brazil, hold more biodiversity per hectare than does the Amazon basin. The reader may persist and extend such an explanation globally. Doesn't protecting the natural forests of the countries of the Amazon basin, enhance the pressure on the forests of, say, the Congo Basin or Papua-New Guinea? Our defense is simple. A sequel is needed: *The Congo in the Arts: Ecocriticism versus the Economics of Deforestation or PNG in the Arts: Ecocriticism versus the Economics of Transmigrasi*.

[21] Vogel, chap 1, n. 17.

[22] Smith, Richard Norton. "Hoover & Truman: A Presidential Friendship" A Joint Project of the Truman & Hoover Presidential Libraries.

<http://www.trumanlibrary.org/hoover/intro.htm>, accessed on 30 May 2006.

[23] Ibid.

[24] See n. 9, 143-144.

[25] The entry for “Charles Darwin” in Wikipedia reports it using the nineteenth century terminology “gentleman’s companion,” http://en.wikipedia.org/wiki/Charles_Darwin, accessed on June 20, 2006.

[26] “Because we are the cause of our environmental problems, we are the ones in control of them, and we can choose or not choose to stop causing them and start solving them” Jared Diamond, *Collapse: How Societies Choose to Fail or Succeed* (New York: Viking, 2005) 521.

[27] Lewis Saunders, *Reminiscences of Dawesfield & Vicinity* ([1896]Reprinted by Permission of Mrs. Carroll R. Wetzel [Phoebe M. Francine] A descendant of Saunders Lewis). Limited Edition No. 246/500. October 1998.

[28] Ibid, 14; ibid 21.

[29] The study of genealogy tells us much about the person studying it. With consternation and sadness we read that the most coveted ancestor in the American South is Robert E. Lee, the president of the Confederate States of America (1860-1864). See Amy Harmon, “Who’s Your Great-Great-Great-Great-Granddaddy?” *The New York Times Week in Review*, June 11, 2006. Section 4, p.1

[30] The study of evolution engenders a deep respect for the other products of evolution. Therefore, Wilson’s heartfelt desire that “Half the world for humanity, half for the rest of life” also makes sense in the light of evolution, chap 3, n. 22, 163. Sarah F. Brosnan and Frans B.M. de Waal have shown “Monkeys reject unequal pay” *Nature* 425 (2003): 297-299. Wilson puts the rest of the biota on equal footing with *Homo sapiens sapiens*.

[31] Paola Cavalieri and Peter Singer (eds.) *The Great Ape Project: Equality beyond humanity*.
(London: Fourth Estate Limited, 1993).

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