

HUMAN ECOLOGY, ANTHROPOCENE GEOGRAPHY AND SPIRITUAL
ECOLOGY: A CASE STUDY OF METTA FOREST BUDDHIST MONASTERY

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ABSTRACT

HUMAN ECOLOGY, ANTHROPOCENE GEOGRAPHY AND SPIRITUAL ECOLOGY: A CASE STUDY OF METTA FOREST BUDDHIST MONASTERY

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In an era of increasing growth in human population and human transformation of the earth, geographers are paying closer attention to nature-society interactions. This thesis uses a conceptual framework of human ecology, deep ecology, spiritual ecology, and Anthropocene geography (a new field introduced in this thesis) to explore the dynamics, causes and consequences of how humans utilize the earth and its non-human life forms.

Anthropocene geography contextualizes the field of geography in the Anthropocene epoch, which is characterized by humanity's unprecedented, wide-ranging impacts on earth's atmospheric, biological and geological systems.

The Anthropocene Ecosystems Model (AEM), introduced for the first time in this thesis, is used herein to explore interrelationships between physical environment, physiological needs, infrastructure needs, spatial orientation, human culture, and the anthropogenic impacts of the field study site, which is a Thai Forest Buddhist monastery in Southern California. The thesis also includes an exhaustive literature review that explores relevant topics in humanistic geography, environmental science, ecology, biology, Buddhism and sociology.

Methodologies used for thesis field research include participant observation, physical geography surveys and interviews with monastery management, monks, lay residents and visitors. The thesis reveals that the Buddhist monastery studied by this researcher is governed by long-held traditions that explicitly emphasize not harming the environment and living organisms. Formal and informal monastery protocols, practices and teachings reinforce Buddhist principles of non-harm, gentleness and meditation. Although the monastery site itself is an island of quiet, contemplation and low-impact living, its sustenance, fuel, food and funding are provided by systems of techno-industrial processes and economics that clash sharply with Buddhist non-harm values.

This thesis provides unique insights and information for geographers, ecologists, religious scholars, environmentalists and others concerned about nature-society interactions and the fate of our planet and human society. It is one of few studies that examines the human ecology and natural ecology of a North American Buddhist site. It introduces two new concepts (Anthropocene geography and the AEM), and offers a detailed list of suggestions for future research and policy changes.

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INTRODUCTION

My Chinese parents fled Maoist China, arrived penniless in North America and worked night and day providing an upper middle class Southern California suburban lifestyle for our family. Hearing my parents talk about how the world has changed and the poverty they experienced makes me grateful for their hard work and sacrifice. It also causes me to feel gratitude for the unprecedented largesse available in techno-industrial society. Elderly people tell me today's world is like the fantasy comic books and science fiction stories they read in the early 1900s. If Rip Van Winkle was to have fallen asleep in 1819 and woken up today, he would look around in awe at the vast network of labor, economies, culture, technology, extraction of earth materials, and exploitation of non-human species offers us life's necessities, as long as we can afford to pay for them. Our society is an engineering marvel that reaches into and supports every aspect of my life. As a resident of Southern California, for example, my municipal water is appropriated from Northern California snowmelt, the Colorado River, and a rapidly-shrinking supply of groundwater. California's State Water Project uses massive, energy-guzzling pumps to send water up and over mountains so I can drink and shower in Los Angeles. (Reisner 1993).

After I've showered in water that originates in Colorado, I go to the grocery store; the majority of food items sold there are produced and processed by strangers many miles away, flown in on airplanes, and trucked to the store. Some of these "foods" are exotic cultivars or genetically-engineered species, such as "farm-raised salmon." Other food products are recombined, bioengineered materials laced with chemicals, binders, and dyes; these items are so sterile and inorganic, so different from foods our ancestors

hunted, gathered, or cultivated, that they can sit on a shelf for years unchanged. Some call them “Frankenfoods” (Schlosser 2001).

With the flick of my finger, I fire up the engine of an exoskeleton-like machine that weighs more than two tons, breathes oxygen, produces carbon monoxide and other harmful byproducts, and hurtles me through space at speeds my body could never reach on its own.

For a few hundred dollars, I can board a piloted, winged missile that rockets me around the globe across hemispheres, the international dateline, across seasons...all in one flight from Los Angeles to Sydney. I sit in the aluminum tube 30,000 feet above the earth, traveling 400 miles per hour, tapped into a worldwide electricity-fueled web containing trillions of words, pictures and videos, instantly communicating with others who also have access to this ephemeral, machine-assisted “web.”

At every level of our biological and social existence, anthropogenic activities provide a sumptuous menu of unprecedented choices, powers, materials and comforts unavailable to even the wealthiest, most powerful humans who lived just a few generations ago. Simply put, we humans have broken the bonds of mechanistic natural selection, ecosystem roles, and other biological strictures that govern all other life on earth. We now shape evolution, rather than just being shaped by it, wielding powers formerly attributed only to gods or Nature. As evidenced by the following, admittedly incomplete list of our unique human abilities, we are *the* only animal species on track to utterly transform the entire planet. Humans can:

- Tap fossil fuels for conversion into fertilizers, plastics, other materials, and energy
- Categorize, disassemble, reassemble and create chemical elements and compounds
- Stimulate, cause and harness nuclear fission for industrial and military purposes

- Genetically engineer and clone other life forms and ourselves to create novel forms of life, replacement organs, stem cells, etc.
- Harvest, breed and cultivate animals, trees, plants, and other life forms for food and materials
- Mine minerals, metals and other materials from surface and deep earth sources
- Build complex machines
- Instantaneously communicate and trade globally using spoken and written languages, images and mass communications networks
- Live outside earth's biosphere in the "lifeless" environment of space
- Send probes and other devices to other planets and outside our solar system
- Utilize medical procedures, machinery, bioengineered materials and pharmaceuticals to repair the severest of injuries, defeat diseases and extend life
- Use clothing, interior climate control and building technologies so we live even in the most extreme environments
- Wage mechanized, high-tech wars using weapons of mass destruction
- Manifest and experience the unique characteristics of human consciousness as expressed in the arts, spirituality, religion, philosophy and ethics

We are alone in creating a globalized web of commerce, resource extraction, manufacturing, communications, energy supplies, culture and infrastructure. Most of us in First World countries have a very hard time living without this web; we lack the survival skills, physical strength and geographical knowledge possessed by indigenous peoples who once lived where we now live. And like most people, I lived most of my life unaware of the scope and consequences of the vast anthropogenic web that keeps modern society going. But when I studied college-level biology, human ecology, geography, anthropology and environmental science, I learned that I live in a "disequilibrium society" (Bennett 2009).

Ecological anthropologist John Bennett describes disequilibrium society in his book *The Ecological Transition*:

[Disequilibrium society has] complex internal and external relations: it is in 'free space,' not bounded space, since it seeks resources wherever they are to be found, and thereby does not need to depend on a local supply for survival. Such societies

may have a philosophy of social continuity, but it is expressed by growth and change – development, improvement, increasing satisfaction not tradition – hence they are dynamic in the context of resource use. They require larger amounts of energy, and they consider Nature to exist primarily for satisfaction of human wants. (Bennett 2009: 137-138)

Disequilibrating societies “progressively abuse” and exhaust Nature, and inherently run ecological deficits that limit their long-term viability (Bennett 2009: 238). Evaluate techno-industrial society’s patterns of energy consumption, materials extraction, waste, pollution, alteration of the biosphere and diminishment of “ecosystem services,” and you find a hungry system rapaciously using finite materials that cannot be fully replaced or recycled. You see harmful wastes that pour into the commons and cannot safely be cached. You find economic inequities and sociocultural conflicts that harm humans and the environment (Inyang 2004). You also see anthropogenic mass extinctions (Chapin III et al 2000).

Many of us realize that anthropogenic activities are trashing life-sustaining ecosystems and biosphere processes in a mad rush for short-term “economic” gains (Brown 2008). Eminent geographer Jared Diamond warns that societies that abuse Nature and rapaciously use up resources are heading towards collapse (Diamond 2005). Before total collapse happens, disequilibrating society creates pain and suffering as the toll we pay for the marvels of our modern era. The toll cuts into our sense of space, place and safety. Consider respiration in places like Los Angeles, where breathing embeds particulates and toxins in lungs and other organs, setting us up for respiratory illness and cancers (Seaton et al 1995; Nel 2005; Jacobson 2008). In urban canyons, noise pollution sends mega-decibels of sound pressure waves into our ears; these unnatural, machine-generated sounds flatten the cilia in our ears and can lead to premature hearing loss

(Kluger et al 2004). Pervasive reliance on petroleum-powered vehicles combined with poorly-planned, overburdened transportation structures creates traffic jams and CO₂ domes that encapsulate the region's atmosphere with unhealthy spikes of carbon dioxide and other pollutants (Idso, Idso, and Balling, Jr. 2001; Jacobson 2010). My Los Angeles tap water tastes like chemicals; I view it as unfit to drink without filtration (Kemsley 2007). Traffic gridlock increases risk of vehicular accidents, fight or flight syndrome, pedestrian and bicyclist fatalities, and other negatives (Short and Pinet-Peralta 2010). Intense overcrowding, socioeconomic inequalities, crime, inadequate urban planning and ethnic tensions make many cities dangerous places (Pacione 2003), especially for young females like me who are more often victimized by thieves and rapists in mega-cities than they would be in smaller population zones (Johnson 1980; Kallus and Churchman 2004).

Not every urban area is as frenzied, unhealthy and densely-populated as Los Angeles, but many of them are even worse. Beijing's air is so laden with chemicals and particulates that in 2010 there was a bitter "diplomatic incident" when US embassy officials stationed in Beijing described the city's "toxic" air as "crazy bad" (Associated Press 2010). In 2010, the air in Tehran, Iran has been so thick with gunk that the Islamic government practically shut down the entire city, admitting that vehicle-generated air pollution was killing thousands of people per year (BBC News 2010).

Consider that human population is increasingly concentrated in urban areas. In 2008, the number of people living in urban areas outnumbered those living in rural areas for the first time in history (O'Toole 2009). As recently as 1950, less than 30 percent of the world's people lived in urban areas; the United Nations predicts that 70 percent of us will be living in urban areas by 2050 (United Nations 2008). According to the

Worldwatch Institute, “Unplanned and chaotic urbanization is taking a huge toll on human health and the quality of the environment, contributing to social, ecological, and economic instability in many countries” (Knickerbocker 2007).

Developing nations that used to be less disequibrious are now copying industrialized countries and becoming more disequibrious. The densest urban area in America (Los Angeles) has about 6,000 people per square mile; the densest in Europe (London) has about 13,000. India has 17 urban areas with more than 50,000 people per square mile, while China has at least eight urban areas with more than 40,000 people per square mile (Cox 2008: 76).

People who live in prosperous, well-ordered enclaves may believe that what happens to the rest of the world will not affect them. But disequibrious society creates a “tragedy of the commons” that threatens fundamental systems connecting atmosphere, oceans, photosynthesis, climate and ecosystems services necessary for aerobic life to survive here on earth. What is the tragedy of the commons? It is what happens when the parts of the world we experience in common- such as the atmosphere, climate, oceans, or public amenities- are harmed by activities that benefit the few while harming the many (Hardin 1968; Myers and Kent 2005). To end the tragedy of the commons we must confront the problems of accelerating consumerism and the fact that many humans are unable to discern between needs and wants:

“As things stand now, human *needs* continue to be defined on the basis of *wants*, and only when these satisfactions are met are adjustments made in resource use in order to reduce exploitive use. This approach generates relative deprivation and consequent escalation of wants” (Bennett 1996: 78).

Some consumption is biologically necessary: “Like all animals, [humans] eat – that is, they turn other animals and plants into the substance of their own body. Foods have to be appropriated – animals chased down, killed and cooked” (Tuan 1993: 229). One observer calls it “the omnivore’s dilemma,” but it goes far beyond the fact that humans are the supreme omnivores, killing and eating a vast smorgasbord of plants and animals (Pollan 2006). Like other mammals, we have fundamental needs and instincts, including the need to feed, eliminate wastes, seek shelter, and procreate (McHale and McHale 1979; Tuan 1998).

Our species survives by killing animals and plants, altering landscapes, capturing energy and manipulating earth systems and materials – *but physiological survival is not the only reason for these actions*. An increasing percentage of our consumption is not fueled by survival needs at all; it is instead *discretionary consumption* intended to satisfy an urge for more possessions, status, entertainment and similar rewards.

Consider the generation, transmission and uses of electricity. We primarily generate electricity by damming rivers, burning coal, and splitting atoms. Electricity generation can involve riparian destruction, acid rain, mercury pollution, coal ash accidents, mountaintop coal mining, coalmine deaths and radioactive nuclear waste (Rahn and Lowenthal 1986; Levin and Tolimieri 2001). Hydroelectricity projects flood hundreds of square miles of inhabited land, displacing tens of thousands of people, burying pristine desert canyons or other landscapes beneath lakes of stagnant, silty water (Pearson 1994; Stone 2008).

Follow the trail of electricity generation and consumption related to Flagstaff, Arizona, home of my alma mater and the famed Lowell Observatory, and you see a

microcosm of disequilibrium consumption. To protect the observatory's viewing conditions, Flagstaff officials, Lowell astronomers and "dark sky activists" constantly battle light pollution and air pollution; Flagstaff was named the world's first-ever "International Dark Sky City" (Friederici 2001). But Flagstaff's alpine air is increasingly sullied with air pollution and electric light. Here part of how it happens...

Start with massive coal mines in Northern Arizona and New Mexico – coal mines that cause severe environmental and cultural damage (Hegg and Hobbs 1983; The Ecologist 1995; Navarro 2010). Tally up the energy consumed by machines transferring coal to the 995-megawatt Cholla Power Plant located an hour's drive from Flagstaff or the 750-megawatt Navajo Power Plant located near Page, Arizona (Pasqualetti and Miller 1984). Now visit Grand Canyon National Park. Feel your eyes and lungs burn from sulfurous pollution that pours out of Navajo Power Plant's stacks (Clarke 2006). Navajo's pollution often violates regulations concerning preservation of the viewshed in national parks. Your visit to the majestic Grand Canyon might well be marred by Navajo's pollution that blocks your ability to see the canyon (Wagner 1997).

Now head a couple of hours southeast until you reach Cholla Power Plant. See its mountains of surface-impounded toxic coal ash that has a significant potential to damage human health, wildlife and the environment (Gottlieb, Gilbert, and Evans 2010). In December 2008, Tennessee's TVA Kingston Fossil Plant released an unauthorized slurry of 1.1 billion gallons of toxic coal ash into surrounding lands, aquifers and watersheds (Ruhl et al 2010). Now imagine how wealthy you could get making mercury thermometers from the smoke arising from Cholla and Navajo: coal smoke is a major

contributor to atmospheric, ocean and land mercury pollution that harms humans, animals and the environment (Zhang, Zhu, and Deng 2002; Gottlieb, Gilbert, and Evans 2010).

Such is the coal industry, and electricity costs a lot more than just what we pay for it every month on our utility bill. It costs in health, and lives. Perhaps we could expect rational, civic-minded people to consider the toll electricity takes on humans and the earth, and say to themselves: “Wow, electricity production is severely harmful to the earth and people. So I’ll stop relying on my electronic toys and cut my personal electricity consumption as much as possible.”

In reality, electricity powers necessities such as hospitals and food production facilities, but it also powers television sets, cellular phones, video game consoles and similarly non-essential uses. My neighbors use it for Christmas lights and loud music. I note the megawatt arrays of High Intensity Discharge lights blazing away above empty sports fields and parking lots, long after everyone has departed. Metropolitan light pollution is so intense that it blots out the stars and moon (Longcore and Rich 2004).

Is it absolutely *necessary* for us to have so many lights on or to use electricity for entertainment? Is the entertainment itself even “necessary?” In a society infused with slogans such as “Why ask why?” and “Just do it,” such questions are considered heretical, subversive and offensive. When “sustainability advocates” discuss electricity consumption, their discussion centers on finding ways to generate ever more electricity. Wind farms, nuclear power plants, solar panels, ethanol and other techno-utopian “solutions” are cheerfully proposed, minus a full accounting of the environmental harms caused by even the “greenest” electricity-generating technology. Hardly anyone turns the spotlight on how and why we use electricity. People become uncomfortable, defensive or

even hostile when you ask them to limit electricity consumption. They are confused about wants and needs. As legendary economist E.F. Schumacher in his seminal work *Small is Beautiful* puts it: “I have talked about the religion of economics, the idol worship of material possessions, of consumption and the so-called standard of living, and the fateful propensity that rejoices in the fact that ‘what were luxuries to our fathers have become necessities for us’” (Schumacher 1973: 280).

Topophilia and Biophilia Replaced By Topocide and Solastalgia

Disequilibrrious society compromises human health and social welfare in ways that go beyond the obvious effects of pollution and other recognized “environmental” problems. According to pioneering Canadian physician Gabor Mate, today’s brave new anthropogenically-engineered world negatively affects the neurophysiological architecture of children’s brains, which are warped by built environments, home life, media, psychiatry, pharmaceuticals, junk food, bullies and mass culture to the extent that some young people end up with lifetime pathogenic cognitive-psychological defects that create in them a lack of empathy, moral consciousness, cognitive focus and upper cerebral cortex executive functions (Mate 2000, 2004; Goodman 2010).

Not only does disequilibrrious society affect brain function, it affects our relationship with place – our ability to affectionately feel safe and at home on our planet and in cultural infrastructures. Yi-Fu Tuan’s *topophilia* is the “affective bond between people and place or setting” (Tuan 1974: 4). In Tuan’s worldview, topophilia is often expressed in how humans relate to cities and other tamed environments, which Tuan views as epitomes of civilization and human achievement. Tuan sees untouched wilderness as a setting that humans have long been afraid of and sought to tame. It is

mainly since humans have substantially subdued wilderness, and transformed vast sections of the earth into domesticated terrain, that they have been able to view the remaining wilderness as a pleasant, inspiring refuge, rather than as a frightening landscape full of discomforts and dangers (Oelschlaeger 1991).

Where anthropogenic control reigns, nature is beat back and a new, artificial and sequestered anthropocentric milieu is unfurled just for us. The howling wolves, sabertooth tigers, woolly mammoths and other scary predators who tormented our prehistoric ancestors have been pushed back, exterminated or otherwise silenced. Sounds and sights of nature are masked by sounds and sights of traffic, commerce and our machine-dominated built environment.

In the countryside, nature is hedged by fences, agriculture, estates, and hunting. In the country and the city, society creates an enforced orderliness and anthropocentric dominance so humans can indulge “domesticated topophilia,” symbolized by passive enjoyment of grand landscapes *seen from the comfort of an air conditioned automobile*.

Our sense of place and love of place are often facilitated by the feeling of safety, affection and existential meaning derived from our increasingly godlike ability to control our environments (Tuan 1974). But it is ironic that the anthropogenic dominance we’ve achieved now threatens our ability to feel safe in the world; disequilibrium society reduces our ability to experience topophilia because it generates rapid, disconcerting changes in our places. It generates modern landscapes of fear that interfere with our ability to feel affinity for our surroundings:

Paradoxically, it is in the large city—the most visible symbol of human rationality and triumph over nature—that some of the old fears remain. The urban sprawl, for example, is seen as a jungle, a chaos of buildings, streets, and fast-moving vehicles that disorient and alarm newcomers. But the greatest single threat in the

city is other people. Malevolence, no longer ascribed to nature, remains an attribute of human nature. Certain quarters are shunned because they are haunted by criminals and teen-age gangs. Mobs move and destroy with the impersonality of fire; they are “mindless,” yet they consist of individuals with minds and wills—each with the mind and the will for chaos. (Tuan 1979: 9)

Disequilibrrious society interferes with our ability to experience *biophilia*, which is primarily known as a concept enunciated by Harvard’s E.O. Wilson (Wilson 1984), who also popularized the field of sociobiology (Wilson 1980). He was not the first public scholar to use the term biophilia, which translated literally means “affinity for life.” When German psychologist-philosopher Erich Fromm discussed affinity for life in his 1964 book *The Heart of Man: Its Genius for Good and Evil*, he used the word “biophilia” in a somewhat broader and more anthropocentric sense than Wilson later used it (Fromm 1964).

Wilson’s biophilia focuses on humans’ purported evolutionary biological tendency to appreciate and “need” unspoiled natural ecosystems and native flora and fauna for spiritual, physical, psychological and physiological benefits. In Wilson’s view, biophilia is not a sappy love for nature or a disregard for the safety, comforts and technological miracles that human society provides. Instead, biophilia is a built-in human tendency to appreciate and need the closer relationship with nature that humans participated in until the rise of urbanization and the disequilibrrious society freed most humans from daily contact with intact ecosystems, “the land,” and native flora and fauna (Wilson 1984).

Fromm’s biophilia combines love of nature with love of the zeitgeist of human existence, and of one’s selfhood as a conscious individual who wields “free choice” (Fromm 1964). In a sense, Fromm’s biophilia resembles Tuan’s topophilia more than it

resembles Wilson's version of biophilia, because Fromm sees human affinity for human activity, existential perception and the physical experience of life as elements of biophilia, whereas Wilson's biophilia tends to be more focused on human affinity for "untouched nature."

Before I ever encountered the terms biophilia and topophilia in academia, I intuitively understood the affection one feels for urban and natural places, and for life itself. We humans are apparently the only species with the unique capacity to recognize the ultimate specialness of our world, to moderate survival-related and non-essential consumption, and to contemplate the ethics, morality and spiritual implications of how we interact with other organisms and the planet (Sponsel 2010; Taylor 2010).

When I visit wilderness areas, the absence of machine noise, crowding, crime, and traffic jams provide a refuge from the city's onslaught and a stark contrast to the urban trauma I have temporarily escaped. It is hard to imagine that only a few centuries ago the land on which Los Angeles now stands was a rich wilderness teeming with biodiversity. Where has it all gone, I wonder, and what have we replaced it with?

I recall sitting in a wilderness area a few hundred miles from Los Angeles as a young child, watching ants gathering detritus and aerating the soil. Flowers bloomed and pollinators buzzed about serving their own interests and the interests of flowering plants and trees. Birds and land mammals ate berries and nuts, spreading seeds of trees and plants as they enjoyed their day. Wind blew through leaves, helping stomata breathe in CO₂ and breathe out oxygen. Sunshine streamed in from the sky, fueling photosynthesis. I rejoiced in a balanced, productive, equilibrrious system contributing to the health and life of the local area and our planet in general, enriching the commons.

Other than my family and I, every organism in that place inherently and crucially contributed to the life processes there. As ecologically-conscious humans, we sat on the fringes of that intact ecosystem, admiring its complexity and balance, careful not to interrupt the system. I remember worrying that if a logger, miner, hunter or developer was there with us carrying out their customary activities, the balance and beauty would have been quickly ruined. Sure enough, a few years later I revisited that very same location and wept bitterly when I saw it had been bulldozed and paved over so a shopping center could be built there. The shopping center's construction, viewed from the perspective of an ecologist, extinguished the life of the soil, the oxygen-generation potential of the site's plants and trees, the photosynthetic conversion of sunshine, the biogeochemical cycling of nutrients in the soil, the watershed services, the biodiversity and the public value of open space. Multiply these losses by the millions of acres "developed" or otherwise anthropogenically altered worldwide every day. As geographer Peter Brown explains, our species is massacring the very *commonwealth of life* (Brown 2008).

If you have ever been dismayed by destruction of a place you love, you have experienced *solastalgia*. Australian scholar Glenn Albrecht created the term solastalgia in 2003, describing it as "the distress that is produced by environmental change" (Albrecht et al 2007: S95). "I suggest 'solastalgia' to describe the pain or sickness caused by the loss of, or inability to derive solace from, the present state of one's home environment; Solastalgia exists when there is recognition that the beloved place in which one resides is under assault...", Albrecht said (Albrecht 2006: 35).

As much as I love humanity and modern culture, as a scientist I must also candidly admit that our amazingly pleasurable anthropogenic world is built, like that shopping center, on a foundation of suffering, biodiversity loss and disequilibrium.

Spiritual Ecology and the Hollowness of Sustainability

The proactive, practical value of discovering our disequilibrium society is robbing us of topophilia, biophilia, biodiversity, human health, and other valuable facets of life is that we can then ask the crucial questions: What could change disequilibrium society into equilibrium society? How could geographers help humans experience more topophilia and biophilia, and less solastalgia?

The most popular “environmentalist” paradigms are “sustainability models” ostensibly intended to increase energy efficiency, retrofit infrastructure, preserve Nature’s services and eliminate the most obviously egregious environmental problems. Sustainability does not ask us to sacrifice much or change hardly at all. It offers new products and technologies: hybrid cars, recycling, fluorescent light bulbs, rainwater harvesting, edible landscaping, organic and urban gardening, energy-efficient alternative buildings, “green” burials, wind power, and solar energy. Few if any sustainability advocates challenge the basic tenets of disequilibrium society embedded in capitalism’s insistence on ever-increasing consumption of finite resources. Nor do they challenge anthropocentric assumptions that claim the entire planet was put here for us to consume (White 1967; Rees 1995; Sneddon, Howarth, and Norgaard 2006).

The depth of psychological denial, scientific illiteracy and shallow thinking that supports disequilibrium society’s business as usual results in part from deliberate social engineering that encourages us to believe that *we do not have to change our ways, but*

somehow everything will turn out just fine. Pulitzer Prize-winning war correspondent

Chris Hedges, who has made a career out of telling people things they don't want to hear, puts it like this:

The global economy is built on the erroneous belief that the marketplace—read human greed—should dictate human behavior and that economies can expand eternally. Globalism works under the assumption that the ecosystem can continue to be battered by massive carbon emissions without major consequences. And the engine of global economic expansion is based on the assurance that there will always be plentiful and cheap oil. The inability to confront simple truths about human nature and the natural world leaves the elites unable to articulate new social, economic and political paradigms. They look only for ways to perpetuate a dying system. Thomas Friedman and the array of other propagandists for globalization make as much sense as [disgraced actor] Charlie Sheen.

Globalization is the modern articulation of the ancient ideology used by past elites to turn citizens into serfs and the natural world into a wasteland for profit. Nothing to these elites is sacred. Human beings and the natural world are exploited until exhaustion or collapse. The elites make no pretense of defending the common good. It is, in short, the defeat of rational thought and the death of humanism. The march toward self-annihilation has already obliterated 90 percent of the large fish in the oceans and wiped out half of the mature tropical forests, the lungs of the planet. At this rate by 2030 only 10 percent of the Earth's tropical forests will remain. Contaminated water kills 25,000 people every day around the globe, and each year some 20 million children are impaired by malnourishment. Greenhouse gases in the atmosphere now are at 329 parts per million and climbing, with most climate scientists warning that the level must remain below 350 ppm to sustain life as we know it. The Intergovernmental Panel on Climate Change estimates that the measurement could reach 541 to 970 ppm by 2100. At that point huge parts of the planet, beset with overpopulation, droughts, soil erosion, freak storms, massive crop failures and rising sea levels, will be unfit for human existence.

Jared Diamond in his essay "The Last Americans" notes that by the time Hernan Cortés reached the Yucatán, millions of Mayan subjects had vanished.

"Why," Diamond writes, "did the kings and nobles not recognize and solve these problems? A major reason was that their attention was evidently focused on the short-term concerns of enriching themselves, waging wars, erecting monuments,

competing with one another, and extracting enough food from the peasants to support all these activities.”

“Pumping that oil, cutting down those trees, and catching those fish may benefit the elite by bringing them money or prestige and yet be bad for society as a whole (including the children of the elite) in the long run,” Diamond went on. “Maya kings were consumed by immediate concerns for their prestige (requiring more and bigger temples) and their success in the next war (requiring more followers), rather than for the happiness of commoners or of the next generation. Those people with the greatest power to make decisions in our own society today regularly make money from activities that may be bad for society as a whole and for their own children; those decision-makers include Enron executives, many land developers, and advocates of tax cuts for the rich.”

It was no different on Easter Island. The inhabitants, when they first settled the 64-square-mile island during the fifth century, found abundant fresh water and woods filled with the Chilean wine palm, a tree that can reach the size of an oak. Seafood, including fish, seals, porpoises and turtles, and nesting seabirds were plentiful. Easter Island’s society, which split into an elaborate caste system of nobles, priests and commoners, had within five or six centuries swelled to some 10,000 people. The natural resources were devoured and began to disappear.

“Forest clearance for the growing of crops would have led to population increase, but also to soil erosion and decline of soil fertility,” Paul Bahn and John Flenley write in “Easter Island, Earth Island.” “Progressively more land would have had to be cleared. Trees and shrubs would also be cut down for canoe building, firewood, house construction, and for the timbers and ropes needed in the movement and erection of statues. Palm fruits would be eaten, thus reducing regeneration of the palm. Rats, introduced for food, could have fed on the palm fruits, multiplied rapidly and completely prevented palm regeneration. The over exploitation of prolific sea bird resources would have eliminated these for all but the offshore islets. Rats could have helped in this process by eating eggs. The abundant food provided by fishing, sea birds and rats would have encouraged rapid initial human population growth. Unrestrained human population increase would later put pressure on availability of land, leading to disputes and eventually warfare. Non-availability of timber and rope would make it pointless to carve further statues. A disillusionment with the efficacy of the statue religion in providing the wants of the people could lead to the abandonment of this cult. Inadequate canoes would restrict fishing to the inshore waters, leading to further decline in protein supplies. The result could have been general famine, warfare

and the collapse of the whole economy, leading to a marked population decline.” (Hedges 2011)

Other than Hedges and Diamond, few other public voices point out the lack of discussion and debate about the anthropocentric assumptions regarding anthropogenic activities and their ecological effects. Conversations about climate change, pollution, human population growth and environmentalism are framed and limited by anthropocentric concerns, especially “what is best for the economy.” Saving the earth is presented as “saving the earth *for humans to use*.” Discussions about animal experimentation, factory farms, and anthropogenic mass extinctions are framed in terms of what other species do for humans, with little concern for the suffering that humans create in other animals. Rarely is a moral or ethical element seriously considered in these discussions. The tender and moral aspects of humans- mercy, compassion, generosity, love, idealism, gratitude, repentance, self-restraint, modesty, thrift, awe, transcendence- are left out of the conversation, if not outright scorned.

In contrast, my research emphasizes the “spiritual ecology” framework popularized by University of Hawaii anthropologist Leslie Sponsel. When spiritual values are included in analysis of human-nature interaction, we see how value systems, ethics, religion, idealism and other factors could play a more central role in guiding humanity’s relationship with nature (Sponsel 2010). Sponsel defines spiritual ecology as “a complex and diverse arena of intellectual and practical activities at the interface of religions and spiritualities on the one hand, and on the other ecologies, environments, and environmentalisms” (Sponsel 2010: 1). Other scholars “prefer [terms] like religion and ecology or religion and nature, [but they all] are basically talking about the same thing... In essence, secular approaches to resolving eco-insanity have been necessary, but they are

insufficient. Only a radical transformation of individuals and societies will turn things around for the better, a spirituality in nature is the last resort as a catalyst for such a revolution. This is the basic message of spiritual ecology” (L.E. Sponsel, personal communication, March 5, 2011).

Sponsel says our ecological and societal decision-making will improve when we develop expanded awareness of the moral and spiritual potentials of human-nature interactions. At present, humans as a species are somewhat like a group of greedy, skilled, amoral children gone wild. We deliberately or inadvertently do not see the suffering we cause each other, other species and the earth. Humans are “an animal who moves on Earth, through its spaces and properties, consuming what he needs to survive, dealing with other species, and like other animals, *largely unaware* [emphasis added] of the complicated relationships among the phenomena he disturbs or changes...” (Bennett 2009: 35).

No doubt we could remediate disequilibrium society by significantly changing government structures, public policy, economic systems, private businesses and peoples’ attitudes about consumerism, population growth, the environment and society (Brown 2008). To create society in which topophilia, biophilia, ecosystems integrity and biodiversity are enhanced rather than degraded, humans could revise their value systems, aspirations and attitudes and engage in “self-regulation” that decreases destructive behaviors (Bennett 2009: 36). Self-regulation involves ethics, morals and spiritual values that encourage humans to act for the benefit of others. But “because of the nature of human emotional makeup, it may be easier to consume than to stop consuming – voluntary deprivation (austerity, abnegation, renunciation)...is perhaps the most difficult

kind of all kinds of self-regulation, and this may be why it has played such an important role in the universal religions” (Bennett 2009: 36).

Biocentric ecological theorist Derrick Jensen bluntly asserts in his book, *What We Leave Behind*: “Industrial civilization is incompatible with life. It is systematically destroying life on this planet, undercutting its very basis. This culture is, to put it bluntly, murdering the earth” (Jensen and McBay 2009: vii).

Yi Fu Tuan, a humanistic geographer who like most of us values the comforts and safety created by techno-industrialism, puts it more gently:

“Ambivalence toward culture is expressed in a variety of ways, but I think most clearly and concisely in attitudes toward progress. The basic question then is: Are people building a better world, and if so, in what sense is it better?” (Tuan 1989: 69-70)

Unfortunately, such questions and concerns are almost completely missing from mainstream discussion of environmental and societal problems. Most of us are adamantly unwilling or physiologically unable to live without electricity, technology and modern culture, but we worry about the possibility that our support industries and cultural structures are creating a dystopic world of brown air, mass extinctions, famines, droughts and civil unrest. We would like to have technology, art, abundant supplies of life’s necessities, connection to place, a love of life, *and* an Edenic earth. I doubt that such an arrangement is possible; I took a “sustainability test” and learned that if everyone lived like I live, there would have to be 4.4 earths to support us.

According to anthropologist William Balee, some people see all humans, even indigenous humans, as *Homo devastans*. This phrase refers to a presumed human tendency to severely interrupt if not outright demolish every ecosystem we encounter,

which in Balee's view is an unfair generalization (Balee 1998: 16). Anthropologist Warren Hern designed a schematic view of the human infrastructure growth of London from 1800 to 1955, describing it as "resembling an expanding, invasive, metastatic, malignant tumor." Hern proposed the term *Homo ecophagus* ('ecosystem-devourer') as the appropriate scientific name for humans (Metzner 1999: 81).

Sponsel argues that some groups of humans live or have lived in almost total equilibrrious harmony with their environment. He says environmental harms are not caused by human nature, but by industrial society. Yi-Fu Tuan describes the Semang of Malaysia and the Mbuti Pygmies of the Congo forest in a way that harkens back to Eden (Tuan 1986: 30). To read Tuan's description of the societal and personal qualities of these people is to be at once inspired and somewhat saddened, because the media that feeds me information from disequilibrrious society tells of oil spills, wars, revolutions, gas pipeline explosions, famine, drought, greed, murders, corruption, pathological overconsumptive selfishness and individualism, food price increases and floundering economies...while the Semang have no experience with war, murder, suicide, adultery, and theft. They don't have zoos or circuses. To mistreat a captured animal or even to laugh at it are prohibited behaviors (Tuan 1986: 31). The Mbuti are in love with their rainforest to the extent that their peak experiences include making love in the forest under moonlight, or dancing alone in what appears to be a dance that courts the forest! These indigenous peoples, as long as they are free from contact with outsiders, have no experience of "evil" (Tuan 1986: 31). Could these small groups of native peoples be role models for how the rest of us could interact with nature and each other?

As I honed in on the research questions and case study ideas for this thesis, I was intrigued by the idea of finding a group of people (other than indigenous people such as the Semang) who live an ecologically-conscious, topophilia-enhancing ethic. At first, I considered eco-villages. These are “intentional communities” chartered to minimize environmental impact. They usually feature “alternative” approaches to infrastructure, water sourcing and use, energy consumption, food supply, transportation and other structural aspects (Carroll 2010). Along with that, many eco-villages have egalitarian, consensus-based social and governance arrangements (Mulder, Costanza, and Erickson 2006; Meijering, Huigen, Van Hoven 2007). They usually have low population density and occupy a geographically small area. Property rights, family rearing and sexual customs are sometimes dissimilar from those found in regular society. In many ways, today’s ecovillages are a continuation of experiments with communal or collective living, and utopianism that have been around for centuries. Even Plato is cited as an early advocate for a communal, back to nature, utopian lifestyle:

[The people will] produce corn and wine and clothes and shoes and build houses for themselves. ... They will work in summer commonly [stripped] and barefoot. ... They will feed on barley and wheat, baking the wheat and kneading the flour, making noble puddings and loaves. ... And they and their children will feast, drinking of the wine which they have made, wearing garlands on their heads, and having the praises of the gods on their lips, living in sweet society. (Mumford 1962: 35-36)

Since Plato’s time, small groups of humans have attempted to live in ways that decrease ecological harms and increase societal health and happiness. These groups have many forms and names, such as kibbutz, commune, eco-village, Bruderhof, Shaker, Amish or even communist, (Kanter 1973). Most Americans have at least heard of the Amish; their culture “officially” recognizes and attempts to sequester some of the dangers

of technology. In general, Amish attempt to source life's necessities locally from their own enterprises. They also have spiritual ecology: their religion-inspired moral code encourages them to live in a way that does not create problems associated with disequilibrium society (Kraybill 2001).

I have a background working professionally with domesticated and non-domesticated animals and researching animal sentience, and have witnessed first-hand the incredible brutality that humanity foists on its animal brethren. I therefore hoped that I might find an "alternative society" with a non-utilitarian approach towards animals and ecosystems. After I read of a Buddhist monk from the "Thai Forest Tradition" who put monk robes on trees to protect them from loggers (Darlington 1998), I dug into the history and practice of the Thai Forest Buddhist Tradition. As practiced at its monasteries, this tradition embodies an unusually strict adherence to the Buddhist doctrine of *ahimsa* (non-harm). Thai Forest monks are not allowed to kill anything – not even a weed, snake or mosquito. As well, the Thai Forest Tradition emphasizes avoidance of non-necessary consumption, what many of us would call an "ascetic" lifestyle.

There are few Thai Forest monasteries in North America. I located one in Southern California, gained permission from its abbot so I could conduct field research there, and spent two weeks on site as a layperson following monastery rules for non-monastics and doing fieldwork.

My conceptual framework for evaluating the monastery is a hybrid of human ecology and deep ecology. Deep ecology posits that humans are *not* the most important organism in the universe. It asks us to become more egalitarian and generous in how we

interact with other life forms and the earth itself (Naess 1989). This thesis expands human ecology's Human Ecosystems Model (HEM), which looks at feedback loops, survival needs, conditions, practices and impacts that influence humans as they transform earth into "culture" (Machlis, Force, and Burch, Jr. 1997).

Note that human ecology defines "culture" somewhat differently than its common usage. Culture is not just human society, social rules, art and so on... culture is *all* anthropogenic activity *and* all the wide-ranging results of such activity:

Equally important is the incorporation of natural or earthly phenomena into Culture. The classic instance is that of water flowing over a dam: prior to the construction of the dam the water ran free, it was part of Nature. But once it flows over the dam under the guidance of human beings and drives turbines or irrigates fields it becomes a cultural object, a part of human endeavor incorporated into human institutions: the water is assigned value and its value can then be expressed or compared to other values and phenomena either natural or manufactured. (Bennett 1996: 7)

Please note also that this thesis is not religious geography. It is instead a linked multidisciplinary approach for which geography is well-suited, focusing primarily on the human ecology of the monastery as a specific unit of human community.

Paths of Discovery

In the commonly-accepted lore of Buddhism, we are told that the man now called Buddha was initially a wealthy prince who never experienced or witnessed pain or suffering until he suddenly became aware of sickness, old age, suffering and death. He saw behind the pretty façade of ideal life that his well-meaning royal father had provided for him, and was shocked to see the world as a place of kill or be killed, eat or be eaten, and all kinds of unavoidable physical or psychological suffering.

When people ask me about Buddha, I often say that of all the religious icons the world is familiar with (Jesus, Mohammed, and Moses among them), the Buddha was the most scientifically minded. What I mean by that is that he saw a problem (suffering) and a lack of knowledge for solving the problem, and then he engaged in research to find solutions through new information.

My “awakening” to the perils of disequilibrium society was similar to the Buddha’s discovery of suffering. I was just a regular First World person, smug and assured in my suburban cocoon, until scientific facts woke me to the realization that my life and lifestyle are supported by systems that harm the natural world that I so appreciate and love. In response to this realization, I tried to become 100% vegan. I fasted to the point that I harmed my health, recalling stories of the Buddha eating so little that people could see his spine protruding through the front of his body. I considered going to live in the woods, Thoreau style, abandoning capitalism and its technologies. I eschewed consumerism and techno-industrial toys. I got rid of my television set. I tried to figure out a way to get around without using petroleum-powered transportation systems. The harder I tried, the more I saw myself as a hypocrite. I recognized that unless I had been born into a culture of indigenous peoples like the Semang or Mbuti, I probably could not live without harming nature, generating pollution, and participating in disequilibrium society.

I didn’t go anywhere near as far as the Buddha went. He almost starved himself to death in a “Jainist” attempt to avoid harming any living thing. Finally, he sat under a tree and “gained enlightenment.” I did not sit under a tree- I returned to academia and immersed myself in the literature of ecology, ethics, sociobiology, human ecology, environmental science and geography because I felt confident that academia was *the*

place where I would find people and wisdom that helps create a world of less pain, more biodiversity, and happy human cultures.

The Buddha walked the Indian countryside, sat under a tree and meditated. I went to Northern Arizona University in Flagstaff, Arizona, and then to fieldwork at a Buddhist monastery. Now read on, and see what I found...

LITERATURE REVIEW

I became professionally interested in human-environment interactions and the health of our biosphere when I was an undergraduate studying biology, geology and related fields. As my interest grew, I noticed that traditional life and earth sciences did not offer a multidisciplinary approach that would allow me to do a full spectrum analysis of human-environment interactions and human ecology. I had already decided to get social science training so it was logical for me to look for an academic field that integrated life science, earth science and social science, and I am glad that geography uniquely encourages a multidisciplinary approach in my areas of interest. Geography includes facets of ecology, anthropology, biology, sociology, geology, psychology, environmental science, demography, climate science, and many other fields (Barrows 1923). It is a unifying discipline especially suited for researching nature-society interactions (Zimmerer 2010).

Yi Fu Tuan, Progress, and Human Good

When I first decided on geography as my graduate school focus, I almost immediately discovered Yi-Fu Tuan, the humanistic geography pioneer whose scholarship and breadth inspired my interest in geography. Tuan has a background in geomorphology, so he often examines human-environment interaction. He also explores humanity's inner terrain: what motivates us, defines us as humans, and shapes our attitudes towards each other, non-human species, and place itself. Further, Tuan's published work contains important ideas and research regarding Buddhism, how and why humans dominate the environment, and the characteristics of a "good society" and "good morals."

“Religion should give us more than just power or special knowledge,” Tuan told me (Y.F. Tuan, personal communication, August 2, 2010). “It should empower people to have better morals.” In the context of my research, “better morals” could mean a competent, science-based approach to structuring society so society is equilibrrious rather than disequilibrrious. Is it unfair to describe it as “immoral” when policymakers, planners, corporations and others excessively damage the natural world while also creating built environments, pollution and defective social structures that damage human and non-human species?

I am also happy to report that Tuan has provided substantial information on Buddha, Buddhist teachings, and how humans structure social and environmental transactions. Tuan notes that Buddhist teachings emphasize *metta* (which translates as “loving kindness”) towards all beings (Tuan 1989: 53). This is closely linked to the doctrine of *ahimsa*, which means “non-harm.” Tuan notes that individual Buddhists and Buddhist doctrines cite varying reasons for practicing *metta* and *ahimsa* (Tuan 1986). Compassion for the suffering of other living organisms inspires *metta* and *ahimsa*; humans are unique in the degree, depth and ways we sense and reflect on the pain of other organisms. Tuan says our ability to feel pain can lead us to change our lives in an attempt to alleviate pain in others.

An organism’s ability to feel pain is closely related to its general level of consciousness. The higher up in the evolutionary scale an organism is, the more likely it is to possess anything that can be identified as pain. In human beings, moreover, the recognition of how another person might suffer from pain—based necessarily on one’s own experience of its tyrannical power—can lead to a radical alteration in one’s way of perceiving and responding to the human condition. The departure of Siddhartha Gautama from his princely home provides the prime example. (Tuan 1986: 148)

Tuan notes that some Buddhists believe that harming other beings may cause the offender to experience karmic punishment during reincarnation (Tuan 1989: 53).

Whatever the reason they are practiced, metta and ahimsa can have a sweetening effect on people and societies. Tuan mentions the story of King Asoka, who converted to Buddhism after scoring bloody victories during a land grab war near the Bay of Bengal (Tuan 1989). After conversion, Asoka embraced metta and ahimsa and extended them to non-human animals by limiting or prohibiting various forms of animal killing. Asoka went so far as to institute innovative humane procedures for animal care, including the planting of flora that had medicinal and habitat benefits for animals (Tuan 1989: 54). This ethic is echoed at Wat Metta in many ways, including a monastery policy that advocates creating firebreaks that do not compromise native animal habitat.

In Burma, Tuan notes, Theravada Buddhism prohibits the killing of all beings (Tuan 1989). This means that Theravada Buddhist Burmese do not engage even in practices that lead to animals being killed, such as cattle ranching or fishing. It also carries over into regular domestic life. Theravada Burmese will not kill mosquitoes or flies that land on them. They will not kill poisonous snakes, even if the snake is found in a house (Tuan 1989: 58).

Tuan notes that Buddhism's non-harm ideals are hard to live up to (Tuan 2008); much of his work explores conflicts between our compassion and ideals and the realities of our physiological needs, economics and overall culture.

The concept "reverence for life" can have meaning only to humans. At the same time, it presents an almost impossible challenge to them. This is so because humans are biologically constituted to be carnivorous: their very teeth, so well suited to tearing animal flesh, are an invitation to the act. And as I have already noted, in most parts of the world people prefer meat when they have a choice... Compared with people less materially advanced, civilized beings are

especially adept at not acknowledging how their body feeds on other living things. Take cooking. By calling it an art, we make it easy to forget that the “art” depends on prior slaughter and the spilling of blood. (Tuan 2008: 143)

Civilization as Excess

Techno-industrial humans do not seem to know how to distinguish necessity from discretionary desire. In their mad rush to satisfy wants that they believe are needs, humans create a juggernaut of anthropogenic “abuses” of nature and other creatures. When Tuan in his book *Human Goodness* (2008) was extolling Albert Schweitzer’s compassion for animals, for example, he notes that humans use animals in experiments and generally do not “put animals near the center of their ethics” (Tuan 2008: 144).

Tuan explains that Schweitzer saw Jesus’ “You shall love your neighbor as yourself” commandment as applying to humans *and* non-human animals (Tuan 2008). Tuan quotes Schweitzer instructing people to pick up a worm that was crawling on a hard street, and place it onto soft earth or grass (Tuan 2008: 144).

Compassion often involves self-sacrifice: the compassionate person may give up personal possessions, status, convenience, home and safety to serve the world and live up to his or her ideals. Schweitzer walked away from a cushy, successful European academic career by going to medical school and then embarking to do humanitarian work in equatorial Africa at a time when Africa had none of the accoutrements of civilization (Tuan 2008). As soon as Schweitzer set up his African medical practice, he was inundated by multitudes of seriously ill patients from various tribes. He treated patients while doing hard labor to create buildings and medical facilities in the African wilderness, and suffered from dysentery, foot ulcers and exhaustion. All the while, he exhibited some of the qualities of a Thai Forest Buddhist monk: he rescued ants from

postholes and worked at his desk in semi-darkness because he feared that a lantern might tempt moths to their death (Tuan 2008: 147).

In contrast to people like Buddha and Schweitzer are those who consider killing animals and plants, exploiting animals for labor, food and experimentation, extracting materials from the earth, and reshaping the earth's surface as our human birthright. Those among us who are sensitive may find moral dilemmas or at least cognitive dissonance in the suffering we cause to other animals and the earth:

Among the complex relations between humans and nature, the most problematical and guilt-ridden is that with animals. People more easily recognize kinship with animals than with any other aspect of nature. Yet animals are killed and eaten, or otherwise brutally exploited. The well-known human ability to compartmentalize knowledge may be well honed on the practice of keeping separate animal as kin and animal as roast. (Tuan 1993: 230)

Tuan acknowledges that our immense, inherent, insatiable desire for power and dominance, coupled with technology and other uniquely human artifacts, makes us as the most powerful animal on this planet (Tuan 1984). Civilization is only created when humans dominate the earth and its life by transforming them into food, shelter, clothing, machinery and other goods and services. Bennett sees this transformation of earth into "culture" as *the* primary consequence of human activity (Bennett 1996). Civilization is based on consumption and material transformation, Tuan says, but civilization is not just for satisfying basic physiological and social needs: it is also about *excessive* consumption (Tuan 1984).

What is the magnificent civilization but one that has fed well on the resources of the earth? A distinguishing mark of civilization is extravagance—that voracious and seemingly insatiable appetite for the consumption and production of goods... Why, in ancient Rome, did the bloody and expensive gladiatorial contests go on even when the Colosseum was half empty? What need was there for such entertainment? To go a step further, what need was there for the Colosseum itself?

Few people dared to address these questions and pursue them to their logical ends because they would have cast doubt on the very grounds of civilization. (Tuan 1984: 10)

And this is not only about how humans treat animals, plants and the earth itself. It is also how we treat each other. Tuan relates the humiliations perpetrated by powerful humans against those less powerful (Tuan 1984). He tells of Londoners who threw coins into the “fetid mud” of the Thames River, watching in amusement as poor children muddied themselves competing for the coins. Passengers on luxury liners throw coins into waters near islands, so poor natives in exotic locales can be treated like “amusing performing animals” as they seek to retrieve the coins (Tuan 1984: 15).

In modern times, we have reality television, NASCAR, Mixed Martial Arts and macabre talk shows popular with those who apparently enjoy seeing other humans deliberately harm each other, injure themselves or die in automobiles, compete dangerously, gossip viciously or reveal embarrassing intimate stories. We use energy and materials for shows featuring dancing bears, zoos, whales that jump through hoops, lions and tigers leaping through rings of fire onstage in Las Vegas. Humans oversee millions of animals in the concentration camp conditions of factory farms, and more millions of animals (including primates, our closest biological relatives) in animal experimentation laboratories where they are subjected to unspeakable suffering so humans can have safe make-up, shampoo and medicines (Singer 2002).

The Draize eye irritancy tests were first used in the 1940s, when J. H. Draize, working for the U.S. Food and Drug Administration, developed a scale for assessing how irritating a substance is when placed in rabbits’ eyes. The animals are usually placed in holding devices from which only their heads protrude. This prevents them scratching or rubbing their eyes. A test substance (such as bleach, shampoo, or ink) is then placed in one eye of each rabbit. The method used is to pull out the lower eyelid and place the substance into the small “cup” thus

formed. The eye is then held closed. Sometimes the application is repeated. The rabbits are observed daily for eye swelling, ulceration, infection, and bleeding. The studies can last up to three weeks. One researcher employed by a large chemical company has described the highest level of reaction as follows:

Total loss of vision due to serious internal injury to cornea or internal structure. Animal holds eye shut urgently. May squeal, claw at eye, jump and try to escape.

But, of course, when in the holding device the rabbits can neither claw at their eyes nor escape... Some substances cause such serious damage that the rabbits' eyes lose all distinguishing characteristics—the iris, pupil, and cornea begin to resemble one massive infection. (Singer 2002: 54-55)

Humanity's Lust for Dominance

Tuan documents how humans genetically and morphologically manipulate other life forms to create novel life forms, utilitarian animals, economic organisms, and entertainment (Tuan 1984). Dogs, goldfish and cats are not the product of pure natural selection, but the whims of humans. Topiary, bonsai and grand gardens feature plants and trees twisted into bizarre shapes. Tuan unflinchingly points out that human power trips extend into family life, especially when it comes to dominance of children and women.

The child, in other words, is a pet and is properly treated as such. Whatever views a mother may have toward her infant, in the actual practice of mothering she has to treat it as an incontinent young animal and even as a thing... At a later stage the child is toilet trained as the pup that is brought into the house must be toilet trained. (Tuan 1984: 115)

In discussions of why children and women are frequent objects of domination, we see one of Tuan's overarching themes: that humans fear Nature and seek to tame it wherever it presents itself (Tuan 1979). Children and women are seen as microcosms of Nature's wild and unpredictable side.

Why were children so often treated as beings of little account? The answer lies in the way adults in different cultures have viewed “human nature,” “animal nature,” and “the body.” All human societies limit the term “people” to their own members and suggest that other human beings are “raw,” animal-like, not fully human. Being “human” is a matter of knowing how to behave properly, of making the right gestures and saying the right things. Now, by these criteria the young of every society are not fully human; they lack culture. (Tuan 1979: 27)

If even children and adult outsiders are viewed as scary and raw, then it is no surprise that topophilia, Tuan’s self-created word that describes a human’s affinity for place and setting (Tuan 1974: 4), is mostly facilitated by subduing nature and creating civilization. Humans are afraid of wild animals and wilderness, but they are also afraid of urban landscapes, other people, and mortality (Tuan 1979). Fear seems to overtake topophilia:

Many people even in the modern and affluent Western world are haunted by fear. Almost daily we read about muggings and murders, and about elderly residents of the inner cities so afraid that they are virtually prisoners within their own homes. While well-educated young people do not usually live in dread of physical violence, more nebulous threats plague their lives. They often appear to be anxious about the future, their own as well as that of humanity. They have the uncomfortable feeling that “things are getting worse”; the future promises not only further deterioration of the inner cities but ecological crisis, racial tensions, world famine and nuclear disaster. (Tuan 1979: 208)

Tuan says modern humans differ greatly from those in traditional cultures when it comes to how they value place and setting. Indigenous peoples never contacted by modern techno-industrial society are likely to have a more richly-developed bond of affection for their place on earth and in the cosmos (Tuan 1974). Not that they have avoided killing in order to survive; Tuan (1974) relishes in bloody descriptions of Eskimo hunting and feasting in which squalor and stark practices are on display.

Referring to the Congo's Mbuti Pygmies, Tuan says one anthropologist's account would lead you to believe that until recently they had "lived in Eden, a benign natural environment that is the polar opposite of the Eskimos', supporting a way of life in which there is no recognition of evil" (Tuan 1998: 35). In contrast with this rosy scenario, Tuan presents the report of another anthropologist, who documents how the Mbuti kill, butcher and eat an elephant in an orgiastic celebration of death and food (Tuan 1998: 35).

Topophilia and the Definition of "Home"

Tuan sees three distinct spatial categories in the techno-industrial world (Tuan 1974). One of them is the utterly civilized urban or suburban environment in which humans have virtually total control over physical factors of the landscape they live in. Another sector is the middle ground of rural countryside—farms, estates and such—that are not urban cities but are fenced and groomed by humans for uses such as fixed agriculture. Opposed to urban place or rural agricultural place, and perhaps waiting to be converted to rural middle ground, is wilderness, where raw, unaltered nature still exists. For Tuan, the "built" world includes the rural countryside, and he points out that humans often do not recognize how much they dominate their landscapes (Tuan 1974).

Modern humans are most likely to experience topophilia in built environments where the dangers of raw nature have been subdued (Tuan 1974: 109). They may especially feel topophilia if they are comfortably affluent and are in the privacy of their own well-appointed homes and communities. When they experience comfortable, familiar and safe cultural and infrastructural ambience, they express it as love of place and setting, and they call it "home" (Tuan 1974: 99). Indeed, living as sedentary beings rather than wide-ranging foragers appears to Tuan as a harbinger of topophilia. "Since the

earliest times, the home base has meant more to humans than to other primates. One reason for the strength of the human bond, to each other as well as to places, is that of receiving nurture and care when sick” (Tuan 1986: 28).

The middle class ideal of home as cushioned haven reached down the social ladder as well as up,” Tuan (1986) says of 19th and 20th century life in the modern West. “...Of course there were important differences of style and content. Whereas the middle class home valued individual privacy as well as gregariousness, the working-class home did not allow for individual withdrawal. However both classes recognized the importance of family cohesion, a warm house and plenty of food. Comfort could hardly be imagined without them” (Tuan 1986: 60).

Tuan is not a blind supporter of urbanism; his work documents the problems with cities, including noise, crowding, social tensions, pollution, and a shortage of quality commons (Tuan 1974). In London at the turn of the 19th century:

...a gutter occupied the center of the street; it was sometimes foul and stagnant, sometimes a rapid stream, the splashing of which, when a cart or carriage passed along, bespattered the dresses of gentle folk. Scavengers more or less maintained the thoroughways but they ignored the heaps of dust and filth that collected in every open space within and without the city of London...In the busy street the pedestrians could neither rush nor leisurely stroll. He had to take care, for the doorsteps projected; the posts took up a large share of the footway; the cobbled stones of the pavement were dislodged here and there, leaving puddles of mud and filth. (Tuan 1974: 186)

Fast forward to Los Angeles two centuries later. Tuan well describes my hometown, Los Angeles, as “the supreme automobile metropolis” (Tuan 1974: 189). He notes that machines dominate the landscape...

The pedestrian is given little consideration in an automobile city like Los Angeles. Even in the 1970's some streets have no sidewalks; many others are long arteries scaled to the speed of the car, and in some sections pedestrians risk being

picked up as vagrants. The streets are noisy. Eardrums of pedestrians are buffeted by the ground bass of automobile traffic, the rumble of heavy trucks, the roar of motorbikes, and the scream of police and ambulances responding to accidents. Little of the noise is human. Indeed not many humans are to be seen. (Tuan 1974: 191)

I close this section by focusing on comparing and contrasting Tuan's Buddhist scholarship with some of the tenets of Thai Forest Buddhism. I will also consider how Tuan's definition of a "good society" includes society that avoids the harms of disequilibrium systems.

Tuan does not claim to specialize in "religious geography" and so his commentaries on Buddhism do not explore the many nuanced differences in theology and practice that a religious studies scholar would perhaps have included. Tuan's Buddhist-related work does not highlight the central role of wilderness and nature in contemplative spiritual experience, although Tuan does acknowledge that wilderness occupies a central place in human imagination, experience and thought.

The Thai Forest Tradition views wilderness as a place free of human dominance where a monk goes to meditate, test his concentration, avoid anthropogenic culture, and live in deliberate harmony with other animals, even deadly animals (Tiyavanich 1997). We read of a Thai Forest monk sitting quietly while man-eating tigers stroll by, but Tuan says most humans worry about untamed nature. "Mountains came under the category of willful and uncontrollable nature beyond the human domain and even, in a sense, beyond God's purview. Likewise, wild animals and dark forests. The root meanings of the word 'wilderness' are suggestive: the adjective 'wild' comes from 'willed'... Wilderness is thus the region of wild animals over which human beings have no control" (Tuan 1979: 80).

He asserts that fear of wilderness has diminished because the amount of wilderness itself has diminished, and because humans use technology to subdue almost anything they encounter in wilderness (Tuan 1979). “Without doubt, fear of wild nature has greatly diminished throughout the world in modern times. ‘Wilderness’ once signified a demonic power utterly beyond human control; now it is a fragile web of life needing human protection and care” (Tuan 1979: 211).

Wilderness or urban, a place called home would ideally include society built on mutually altruistic values, cooperation, civility, generosity, sacrifice and gratitude. In *Human Goodness*, which is my favorite of Tuan’s works, he outlines qualities he believes are indicative of good character that promotes friendly society (Tuan 2008). Tuan’s recipe for human goodness mirrors instruction offered by Buddhism in general and Thai Forest Tradition in particular. Tuan recalls the good behavior he experienced while conducting coastal field research in Panama in 1959 (Tuan 2008). What happened is that while he was focusing on scientific observation, the incoming tide trapped him. A local fisherman was pushing a bike through the inundated muck; he gestured for Tuan to get on the bike, then pushed Tuan across the flooded tidal zone to safety. When Tuan tried to pay him, the man vanished (Tuan 2008: 14). For Tuan, this nameless fisherman embodies the traits that make up human goodness: selflessness, humility, good manners, responsibility, courage, heroism, and caring for strangers (Tuan 2008). Like Buddhism, Tuan emphasizes the issue of compassion towards animals:

Saints identify with the lowly, but do the lowly include animals? Our attitude toward them is profoundly hypocritical. We deny our cruelty by keeping slaughterhouses out of sight, and we deny it with thick layers of sentiment. In modern times, only one group of people seems to me to rise above both. They are the naturalists, people who show genuine appreciation for living things and seek to understand them by patient observation.

But what about Hindus, Buddhists and Jains? Aren't they famous for their dedicated avoidance of doing any harm to living creatures? They were and are indeed so dedicated, but their motives are questionable. Before the sixth century BCE they avoided eating animals because they feared that animals might retaliate in the afterworld. Only later did the doctrine of reincarnation take over, and animals were not eaten because [they] believed that they themselves might be reborn as animals. The motivation, in other words is driven by human fears and concerns and not by love of animals and respect for their dignity as sentient beings. Naturally, there are exceptions. A story in the Jataka relates that Gautama, the Buddha, saw a starving tiger and "though composed in mind, [he] was shaken with compassion by the sufferings of his fellow-creature as Mount Meru [was shaken] by an earthquake. (Tuan 2008: 54-55)

The Many Ecologies

The conceptual framework for my thesis is based on human ecology, deep ecology and spiritual ecology. Taken together, they comprise intellectual territory seldom explored in today's discussions about pollution, climate change, human population growth, biodiversity and environmentalism. For example, we humans take pride in our apparently unique ability to reflect on mortality, pain, and fairness. We tell ourselves we are so very different from other animals because we experience awe, wonder, religiosity and other feelings when we consider consciousness, nature, our friends and relatives, and human achievements. We are apparently the only species that wonders where the universe came from, or creates myths, metaphors and codified morality systems. As well, we are the one animal with the capacity to view life as sacred, amazing and transcendent.

And yet, as noted by Sponsel (2010), these important facets of what make us human are rarely utilized or acknowledged when we decide what our societies are going to be like, or how we are going to treat nature. Our emotional, spiritual and ethical responses to the world are pretty much left out of "official" discussions regarding

“environmental problems.” Human ecology is also left out; most analyses of environmental problems and other pressing issues fail to use human ecology templates that would obviously provide scientific tools for measuring the full range of influences, feedback loops and impacts tied to anthropogenic activities.

Take for example how government land use managers make decisions about what activities and infrastructure to allow and/or create in parks and other protected areas. As Loretta Crystal (1995) points out in her research “The SOS – A Spiritual Opportunity Spectrum: Theory and Implications of Spirit of Place for Ecosystem Management,” land managers give virtually no thought to the “spiritual values” present in the lands they manage. I am not only referring to situations in which native peoples claim that a specific site is sacred, although indigenous value systems are worthy of consideration when you are trying to foster consensus and stakeholder participation. I am also referring to the spiritual aspects of human nature, such as our ability to engage in contemplative activities, to feel awe and gratitude for other life forms and for the earth itself, to seek wilderness as a respite from the anthropogenically-dominated world, and to quiet the mind for relief of stress and perhaps even the experience of something transcendent.

Crystal posits a “spiritual opportunity spectrum” that should guide land managers as they evaluate what a site offers to visitors. Along with documenting the “recreational opportunity spectrum” that encompasses activities including hiking, bicycling, hunting, fishing, jogging and other activities, the manager should evaluate spiritual opportunities, such as “relief and renewal, peace and contentment, a sense of oneness, coherence, appreciation and ‘specialness,’ ...rapture, awe and mystical enchantment,” and should create land use plans that enhance the SOS (Crystal 1995: 7).

Human Ecology and Human Ecology Models (HEMs)

The term “human ecology” was first coined by geographer J.P. Goode in 1907 (Castree 2005), and the formal study of human ecology arose in the 1920s. It was first seen as a social science (Hawley 1950; Young 1974; Gross 2004). Later, human ecology was seen more accurately for what it is: a multidisciplinary field that links earth science, life science and social science (Sears 1954). According to Paul Shepard, the late, iconoclastic human ecology theorist, human ecology is the “exploration of nature and the human mind as a feedback system” (Shepard 1967: 894). Utilization of human ecology has waxed and waned over the past century (Shepard 1967; Whyte 1986), but human ecology has always had close ties with the field of geography, which has been described as the “science of human ecology” (Barrows 1923: 3).

When we look at the elements of human ecology models (Figures 1 and 2), we see crossover between human ecology and physical geography, cultural geography, economic geography, human geography, environmental geography, political geography, and other branches of geography. Like geography, human ecology incorporates concepts from the fields of sociology, anthropology, ecological psychology, economics, ecology, political ecology, philosophy, engineering, architecture, planning, conservation, and public health (Young 1974; Saarinen and Sell 1980; Pattison 1990; Haggett 2001; Gaile and Willmott 2003; Lew 2009).

Ecology, as defined by biological ecology theorist Ramon Margalef, is “the study of systems at a level in which individuals or whole organisms may be considered elements of interaction, either among themselves or with a loosely organized

environmental matrix. Systems at this level are named ecosystems, and ecology, of course, is the biology of ecosystems” (Margalef 1968: 4).

Human ecology applies to humans and human systems. Bennett describes human ecology systems as interactions between individuals, societies and “environmental matrices,” in the context of exchanges “within the group of organisms and between it and the milieu” (Bennett 2009: 35). Bennett says “human systems have biological properties that are susceptible to measurement (although often very difficult to make), and they possess regularities that might form the basis of theoretical constructions” (Bennett 2009: 35). Gary Machlis, Jo Ellen Force and William Burch Jr. (1997) – creators of the “Human Ecosystem Model” (see Figure 2) – define a human ecosystem as:

...a coherent system of biophysical and social factors capable of adaptation and sustainability over time. For example, a rural community can be considered a human ecosystem if it exhibits boundaries, resource flows, social structures, and dynamic continuity. Human ecosystems can be described at several spatial scales, and these scales are hierarchically linked. Hence, a family unit, community, county, region, nation, even the planet, can fruitfully be treated as a human ecosystem. (Machlis, Force, and Burch Jr. 1997: 351)

Human ecology involves more factors than biological ecology because humans have “social variables unique to humans such as symbolic language, elaborate normative systems, values, and meanings” (Machlis, Force, and Burch Jr. 1997: 349). For example, one aspect of human ecology is “...a pattern of purposive behavior involving a matching of resources with objectives, a transforming of natural phenomena in order to meet these objectives, and a capacity to think about this process objectively without actually going through the physical steps” (Bennett 2009: 35-36).

Humans are unique among animals in the range, intensity and abstract representation involved in how we perceive potential outcomes and consequences of our

actions. Unfortunately, our exclusive human abilities do not always translate into us making the most beneficial, ethical, or practical choices possible. Intellect clashes with emotion; desires and recklessness trump restraint and prudence. Humans confuse wants for needs, using false beliefs about what is a “necessity” to justify choices that are ethically suspect. Human ecology is one of few fields of study that creates “models of resource systems that include the forces driving infinite human desires” (Machlis, Force, and Burch Jr. 1997: 348). To create such models, “human variables as both the cause and consequence of system change will need to be joined [to] traditional biophysical concerns” (Machlis, Force, and Burch Jr. 1997: 348).

Take a look at Figures 1 and 2, which are models incorporating what Machlis, Force and Burch Jr. (1997) consider to be three resources critical to a functional human ecosystem: natural resources (e.g. energy, fauna, wood, water), socioeconomic resources (e.g. labor or capital), and cultural resources (e.g. myths and beliefs). Figures 1 and 2 show how human actions impact a far-ranging set of systems and resources. Human ecology connects the physical environment with sociocultural elements. Tugging on one thread of the web produces an effect on other connections in the web; no individual part of the HEM operates totally independent of other parts. Social factors such as human values, needs, and goals unavoidably affect production of the socioeconomic resources described by Machlis, Force and Burch Jr.

When one element of the human ecosystem becomes unbalanced, the entire system becomes unbalanced. This means that a previously “equilibrrious” system becomes disequilibrrious, or a disequilibrrious system becomes even more unbalanced. Let us consider the connection between the “physical environment” and “human biology” in Bennett’s model (Figure 1). When a society harms its natural environment by resource depletion, overdevelopment, anthropogenic climate change or some other way, the balanced connection between physical environment and “energy and goods” is stressed or dysfunctional. The society has an increasingly hard time sourcing food and energy, and its efforts to do so take an increasingly heavy toll on the biosphere.

In the hypothetical model represented in Figure 1, the society is in disequilibrium with its natural environment. In order for a society to be equilibrrious, it must manage or use resources “so as to sustain their yield without significant deterioration [,] for varying periods of time. ...[U]se of resources would fluctuate...on a homeostatic basis. ...[T]he average of [equilibrrious societies] would indicate minimal destructive impact” (Bennett 2009: 136-137). Additionally, equilibrrious societies are “bound to a particular geographical range of resources, and all their necessities (as well as any luxuries) would have to be supplied from this range” (Bennett 2009: 137).

The following table provides characteristics of societies in equilibrium/disequilibrium with the environment:

| Societal Factors | Societies in <i>Equilibrium</i> with environment | Societies in <i>Disequilibrium</i> with environment |
|----------------------------------|---|--|
| Population Dynamics | Small, controlled by cultural and biological feedback loops | Large, expanding, weakly controlled |
| Contact with Natural Environment | Direct contact by maximum number of people | Direct contact by minimal number of people |

| Source of Resources | Locally-produced | Imported |
|-------------------------|---|--|
| Consumption | Minimal; Defined by physiological needs; limited by cultural feedback loops | Maximal; Far beyond actual survival needs; Defined by wants and societal programming (advertising, status) |
| Effects on Ecosystems | Balanced | Rapid use of finite materials; Creation of waste/pollution |
| Reliance on Technology | Low | High |
| Attitudes Toward Nature | Gratitude; Sense of Place | Utilitarian |

Table 1. Characteristics of equilibrious and disequilibrious societies. Adapted from Bennett 2009: 139.

Disequilibrious Society Can Become “Collapsed” Society

A disequilibrious society is well on its way to becoming a “collapsed” society.

Geographer Jared Diamond’s book *Collapse: How Societies Choose to Fail or Succeed* (2005) describes societal characteristics that contribute to disequilibrious conditions that lead to collapse. Diamond has found five factors that can collapse a society: 1) environmental damage, 2) climate change, 3) hostile neighbors, 4) negative changes in import/export economy, and 5) society’s responses to its environmental problems (Diamond 2005: 11). “Environmental damage” includes the following:

- Deforestation and habitat destruction
- Soil problems (erosion, salinization, and soil fertility losses)
- Water management problems
- Overhunting
- Overfishing
- Effects of introduced species on native species
- Human population growth
- Increased per-capita impact of people
- Anthropogenic climate change
- Buildup of toxic chemicals in the environment

- Energy shortages
- Full human utilization of the Earth's photosynthetic capacity (Diamond 2005: 7)

As you can easily recognize, Diamond's collapse characteristics are woven into the fabric of techno-industrial society. Honest observers acknowledge the intensely disequilibrium system we have created. But scholars like Diamond and Bennett point out a glaring problem that has become all too obvious to me as I observe my own behavior and attitudes, and those of society at large. What is that glaring problem? It is that humans seem averse to making an effort to restrain their population growth and consumption growth. This lack of restraint may be hardwired into us by evolutionary biology:

Managing environmental resources sustainably has *always* been difficult, ever since *Homo sapiens* developed modern inventiveness, efficiency, and hunting skills by around 50,000 years ago... Any people can fall into the trap of overexploiting environmental resources, because of ubiquitous problems [such as]: resources initially seem inexhaustibly abundant; that signs of their incipient depletion become masked by normal fluctuations in resource levels between years or decades; that it's difficult to get people to agree on exercising restraint in harvesting a shared resource...; and that the complexity of ecosystems often makes the consequences of some human-caused perturbation virtually impossible to predict even for a professional ecologist. (Diamond 2005: 9-10)

How do people react to the disequilibrium and collapse potential of their societies? Some describe capitalism and consumerism as resembling cancer cells: they grow and grow until they have utterly consumed and killed their host (Hern 1990; Forencich 1992; MacDougall 1996). But as you find when examining how people react to the sudden news that they have cancer, many people resort to denial, defensiveness, anger and irrationality when confronted with news that their lifestyles and industries that support them are creating anthropogenic mass extinctions and loss of topophilia.

People undertake all manner of mental gyrations to avoid acknowledging the tragedy of the commons and the finiteness of “resources.” For example, hostile academic response to Diamond’s *Collapse* catalogued a list of supposed flaws in his research data or conclusions. Critics asserted that Diamond is inaccurate in stating that humans commit ecocide when human population and consumption decimate ecosystems. Their reasoning is that it was not *just* humans that had caused ecosystems and cultures to collapse – it was a synergy of factors. What these critiques fail to acknowledge is that human actions *are* almost always the most influential cause of ecosystems collapse in the case studies Diamond’s *Collapse* explores (see Hunt 2006, 2007; Drake and Hunt 2009; Hunt and Lipo 2009a; Hunt and Lipo 2009b; Hunt and Lipo 2011).

The critiques remind me of those who argue that because asteroids, volcanoes, ice ages and other non-human forces or events have destroyed ecosystems and dominated the earth’s processes, we humans should not feel too badly about anthropogenic destruction. You also have a percentage of people (especially people who run resource extraction industries) who see biodiversity, wilderness, environmentalism, indigenous human cultures and indigenous rights as wholly expendable, especially if protecting native flora, fauna or indigenous culture interferes with “human progress” and financial profits (Beckerman 1996; Ehrlich and Ehrlich 1998). Consider the retort that loggers use in reaction to the deep ecology, “radical environmental group,” that calls itself Earth First! Some loggers sport bumper stickers on their trucks that proclaim: “Earth First – We’ll log the other planets later.” But if you try to explain to the loggers that there are no trees on other planets, you might get a fist in the face as a response: there are documented

instances of resource industry workers, law enforcement officers and resource extractor corporate hirelings violently attacking non-violent environmentalists (Judd 2001).

At the highest levels of official conversation about our world's problems, few influential voices suggest that humans need to quickly and radically change their views, economies and ecological practices. Instead, the mantra is shallow sustainability's subliminal message: "Do not worry. Keep on living your techno-industrial lifestyles and forget about climate change, biodiversity loss, nuclear accidents, earth's carrying capacity, and decreasing quality of life. Get yourself a hybrid car and compact fluorescent light bulbs. Keep on having kids. Keep the shopping malls full. Trust the corporate world to provide you the same lifestyle you enjoy now or better. We'll fix environmental problems with miraculous technology that doesn't exist yet."

If restraining consumerism and human population growth are mentioned at all, it is almost always mentioned in an anthropocentrically selfish frame. "Conservation of living natural resources – plants, animals and microorganisms, and the nonliving elements of the environment on which they depend – *is crucial for development.*" [italics added] -Chapter 6, Brundtland Report, 1987 (Brown 2008: 85).

Rather than advocating reduction in the amount of greenhouse gases pumped into the atmosphere, geoengineering advocates propose dumping chemicals into the atmosphere in what they hope will be a successful attempt to counteract global warming. Instead of reducing the amount of electricity and other energy we consume, techno-utopianists claim that geoengineering, windmills, solar cells, ethanol, hybrid cars, hydroelectric dams and more nuclear power plants will save the day (Economist 2010; Giles 2010). Again, we are confronted with humanity's ability to alter the earth in ways

that no other animals ever could; beavers dam creeks and rivers, but humans dam *entire river systems* – flooding hundreds of square miles of inhabited land, displacing hundreds of thousands of people, or burying pristine desert canyons beneath lakes of stagnant, silty water (Pearson 1994; Stone 2008). No other species has the earth-altering abilities humans have (Ambrose 2001; Shipman 2010), but who is seriously evaluating the logistics and ethics of human dominance of the planet, or the possibility that our dominance will eradicate the fabric of life?

Anthropogenic Impacts and Anthropocene Geography

I am compelled to propose a new form of geography called *anthropocene geography* that acknowledges and explores the unprecedented impact my species is having on this planet. This impact and the increasingly influential role humans play on Earth can be seen as a geologic *era* or *epoch* – a specific sector in geological time during which a major event or force has planet-wide dominance. A Russian geologist used the term “anthropogenic era” in the late 19th or early 20th century (Rajendran 2008); in 2002, atmospheric chemist Paul Crutzen became the first scholar on record to describe humanity’s world-changing activities as an “Anthropocene” epoch (Crutzen 2002; Zalasiewicz et al 2010). Other names for the human-dominated epoch include “anthrocene” and “homogenocene” (Revkin 1992; Samways 1999).

The date of the Anthropocene epoch’s inception is a matter of debate (Johnson 2009), with some of the debate hinging on when was the tipping point at which anthropogenic activities reached critical mass and “took control” of the planet. Some observers assert that the Industrial Revolution certified humans as “rulers” of the planet, because it gave us the combustion machines, knowledge and population numbers to

radically and rapidly change land, sea, atmosphere and biodiversity (Steffen, Crutzen, and McNiell 2007).

Anthropocene geography explores the complex intertwining of self-concept, religion and philosophy, technologies, cultures, mass media, language, governments, political structures, social networks, economics, built environments, human ecology, resource consumption and other anthropogenic factors are the dominant animal-driven forces on our planet. It encompasses all the existing sub-fields of geography in the context of the Anthropocene epoch, which is perhaps best characterized as a time of anthropogenic mass extinction (Jackson 2008). Extinctions have always taken place; extinction rates and scope varies, as do their causes. Some mass extinctions come from cataclysmic events, such as the Permo-Triassic (Kidder and Worsley 2004) and Cretaceous-Tertiary extinction events (Napier 2006). Other extinctions happen during “normal” conditions of natural selection, and are often referred to as the “background rate” of extinctions. One thing I focus on in anthropocene geography is that most scientists agree that anthropogenic-caused extinctions are now at least 10,000 times higher than the background extinction rate found between previous mass extinction events (Wilson 2002; Rose 2008). The only other species even remotely likely to have caused a mass extinction is cyanobacteria. After Macquarie University paleobiologist Dr. John Alroy stated that Earth is experiencing a mass extinction event caused by humans, University of California, Berkeley biology professor Dr. Charles Marshall responded that other than mass extinctions caused by cyanobacteria, anthropogenic mass extinction is the only other mass extinction event caused by a single species (Viegas 2010). Quoted in the press when asked about Dr. Alroy’s comments, Marshall explicitly likened human-

caused mass extinction to another supposed mass extinction, the one caused 2.3 billion years ago when cyanobacteria changed Earth's atmosphere from anaerobic to aerobic, thus eliminating most anaerobic organisms and paving the way for a booming increase in aerobic life biodiversity (Viegas 2010).

In light of the ongoing paving of the planet, some people take extreme measures to try to destroy what they see as the root causes of disequilibrium society. For example, the organization called Earth Liberation Front (ELF) has reportedly been responsible for “setting a series of fires and causing tens of millions of dollars in damage at logging companies, Forest Service offices, genetic-engineering research facilities, automobile dealerships, and corrals where captured wild horses were held, awaiting slaughter” (Taylor 2010: 71). According to their website, ELF is “a covert movement that operates with no central leadership, no hierarchy, no membership databases, but rather a strict adherence to a set of very basic guidelines” (Earth Liberation Front 2011). These guidelines are:

1. To educate the public on the atrocities committed against the environment and all of the species that cohabitate in it;
2. To inflict maximum economic damage to those who profit from the destruction of the natural environment; and
3. To take all necessary precautions against harming any animal, human or non-human (Earth Liberation Front 2011).

Edward Abbey, the late environmentalist and author known for his books *Desert Solitaire* and *The Monkey Wrench Gang*, is cited as being an inspiration in the development of environmental groups like ELF and Earth First! (Philippon 2005). He was known for advocacy of “monkeywrenching,” a method of non-violent property destruction, and other “eco-sabotage” methods designed to impede the advance of

industrial control of our planet. Abbey's vehement protests against the destruction of nature are partially founded on his spiritual relationship with the environment. Abbey wrote about a "feeling of belonging to nature and kinship with its diverse lifeforms, and a corresponding sense of responsibility for their well-being" (Taylor 2010: 83). In *Desert Solitaire*, Abbey (1985) notes that after leaving the artificial lights of civilization, "the night flows back, the mighty stillness embraces and includes me; I can see the stars again and the world of starlight. I am twenty miles or more from the nearest fellow human, but instead of loneliness I feel loveliness. Loveliness and a quiet exultation" (Abbey 1985: 16).

It would be remiss of me to omit eco-theorist author Derrick Jensen from my literature review. He is the heir apparent to the mantle of powerfully uncompromising environmentalist writing that Edward Abbey is famous for, except that Jensen turns the heat up several notches. Jensen is a controversial figure in the environmental movement because he bluntly criticizes what he views as environmentalism's failure to challenge the dominant paradigms that drive capitalism and consumption (Jensen and McBay 2009).

Jensen openly discusses whether non-violent civil disobedience and mainstream political action, minus direct physical defense of Nature, can ever turn back the forces of "omnicide" that he sees embodied in industrial capitalism. He alleges that his biological father repeatedly raped him when he (Jensen) was a child; Jensen uses those rape experiences as a metaphor for how humans brutalize the earth (Jensen 2004). Jensen's books run the gamut from satirical, outraged, poetic, apocalyptic and mystical to journalistic, scholarly and polemical. Much of what he writes carries with it the undeniable passion for truth and unerring devotion to nature that is lacking in most

discussions about human-nature interactions. Here is a cogent sample of Jensen's relevant writings:

I sometimes picture the people who will come after the current planetary blowout (presuming humans survive, presuming any life survives). I go back and forth on what I think they will say about plastic...Gosh, would life be worth living without CD's, plastic pacifiers, plastic wrap, sandwich bags, syringes, bottled water and soda bottles, single serving packets of potato chips, automobiles, straws (and crazy straws!), plastic grocery bags, freezer bags, ice cube trays, bubble wrap and packing peanuts, carpet-backing, Styrofoam life preservers and take-out trays, disposable pens, disposable diapers, hairspray and plastic hairbrushes, plastic toothbrushes, milk crates, packing tape, plastic forks, telephones, computers, hair clips, billiard balls, shower curtains, beach balls, balloons, condoms, and polyester pants?

Surrounded by all these necessary wonders, it can be easy to forget that humans lived without plastics for tens of thousands of years- and to the best of our knowledge, they lived relatively cancer-free for tens or hundreds of thousands of years- and that plastics were invented only a century or so ago...But if you think life without plastic is unthinkable, the deeper truth is that life with plastic may very well be impossible.

...Just to drive the point home, here is another extremely incomplete list of some of the health effects of exposure to various forms of plastic: physical deformities, cancer (brain, breast, cervix, colon, testicular, prostate, and on and on), early puberty, immune deficiencies, endometriosis, behavior problems, lowered intelligence, impaired memory, impaired sexuality, low sperm count, motor skills deficits, reduced eye-hand coordination, reduced physical stamina, and much more.

Industry liars and their pet politicians will of course point to an inability to tell which poison (from which factory) caused which particular cancer. I don't disagree that it may sometimes be difficult to pin down the precise murder weapon...But industrial liars and their pet politicians will then say this uncertainty is reason enough for them to continue business as usual: *It would cause undue economic damage to remove this chemical-which makes all of your lives so much better and easier – from the free market without clear proof of the harm it is alleged to cause.*

...And after all, we *don't* know precisely which poison killed your grandfather, made you sick, killed your dog, made it so you can't fish anymore at your favorite fishing spot because the fish all have tumors, killed your cousin, killed your mother, killed your niece, made your nephew fat, made your granddaughter develop pubic hair and breasts before she entered preschool, gave your sister asthma, gave frogs eight legs, fucked up the genitals of alligators, fish and seagulls, messed with your ability to remember, messed with your ability to think clearly, killed your best friend from childhood, and so on. And of course if we don't know precisely which poison did each of these – if we can't nail it down with 100 percent certainty, then fuck it, we should just keep studying – or rather let industry and government keep studying – until there is nothing left of the world. After all, it's only our love that are at stake, and the lives of those we love, and the life of the planet. (Jensen and McBay 2009: 113-115)

Abbey, Jensen, Barry Lopez, Farley Mowat and others write of feelings about the earth, and the destruction of the earth, that come from the heart and the human spirit. It is important to note the difference between “spiritual” and “religious.” According to the Dalai Lama, spirituality differs from religion in several significant ways. Religion is “concerned with faith in the claims to salvation of one faith tradition or another, an aspect of which is acceptance of some form of metaphysical or supernatural reality, including perhaps an idea of heaven or *nirvana*” (Dalai Lama 1999: 22). Spirituality, on the other hand, is “concerned with those qualities of the human spirit—such as love and compassion, patience, tolerance, forgiveness, contentment, a sense of responsibility, a sense of harmony—which bring happiness to both self and others” (Dalai Lama 1999: 22). These characteristics are rarely addressed in discussions regarding our socioenvironmental crisis (Sponsel 2010). “Human-environmental interactions can involve the supernatural as well as the natural, and emotion as well as reason. Religion can be a powerful influence, but either adaptive or maladaptive. Such phenomena can be researched like any other aspect of culture through standard ethnographic field methods

within the framework of cultural relativism and from a cultural materialist, mentalist, or integrative perspective” (Sponsel 2010).

A handful of scholars have recognized spirituality’s importance in environmental discussions (Yale University 2011). Spiritual ecology is an “interdisciplinary, multidisciplinary, and transdisciplinary field of study” which encompasses “both the spirituality of the individual and the beliefs of many in spiritual beings and forces in nature” (Sponsel 2010). Spiritual ecology provides academic protocols and structures for studying “human nature, the place of humans in nature, and human interactions with nature.” (Sponsel 2010). It “offers a special opportunity to strive for a middle ground between the poles of materialism and mentalism, and perhaps even some integrative model or holistic synthesis” (Sponsel 2007: 343).

Deep Ecology

My conceptual framework includes deep ecology, an eco-philosophical system that involves spiritual, moral and ecological values. Norwegian philosopher Arne Naess is credited with creating deep ecology in 1973 to counter what he saw as conventional “shallow” ecology that dealt with symptoms rather than causes of socioenvironmental problems (Naess 1973). Shallow ecology avoids a full accounting of the causes and consequences of human domination of the natural environment. It does not insist that ethical, moral or spiritual concerns are included in societal decision-making, nor does it have an accurate scientific view of human or biological ecology. It does not seriously acknowledge accelerating anthropogenic destruction of planetary ecosystem integrity or biodiversity.

In contrast, deep ecology acknowledges that biological carrying capacity places limits on economic growth and human population growth. It acknowledges what few admit: that the earth has an anthropogenic carrying capacity that can be exceeded. Or as an anthropocentric observer put it, “Uncritical, unrestrained expansion of human populations, economic systems, technology, material consumption, specialization, and exploitation of the environment will ultimately bring consequences (often unintended) that are inimical to a fuller realization of our human potentials” (Glasser 2011: 53).

Deep Ecology’s Eight Principles

Deep ecology consists of the following eight principles (Naess 1989: 29):

1. The flourishing of human and non-human life on Earth has intrinsic value. The value of non-human life forms is independent of the usefulness these may have for narrow human purposes.
 2. Richness and diversity of life forms are values in themselves and contribute to the flourishing of human and non-human life on Earth.
 3. Humans have no right to reduce this richness and diversity except to satisfy vital needs.
 4. Present human interference with the non-human world is excessive, and the situation is rapidly worsening.
 5. The flourishing of human life and cultures is compatible with a substantial decrease of the human population. The flourishing of non-human life requires such a decrease.
 6. Significant change of life conditions for the better requires change in policies. These affect basic economic, technological, and ideological structures.
 7. The ideological change is mainly that of appreciating *life quality* (dwelling in situations of intrinsic value) rather than adhering to a high standard of living. There will be a profound awareness of the difference between big and great.
 8. Those who subscribe to the foregoing points have an obligation directly or indirectly to participate in the attempt to implement the necessary changes.
- (Naess 1989: 29)

Of these foregoing eight principles, numbers two, four, five, and six are rooted in empirically demonstrable scientific fact. The other principles are in the realm of morals,

value systems and spirituality. The former principles are not open to legitimate debate; it is well-established that an anthropogenic mass extinction event is underway and that we are the most powerful, ecosystems-disturbing animal ever seen. The latter principles are open to debate, but only a debate about humanity's core values. In a simplified rendition of the values revealed by the debate, I see humans grouped into two categories (with some crossover between the two so that nobody is an absolute form of one or the other).

One category is humans who understand intellectually and embrace emotionally and spiritually a view of life that includes topophilia and Fromm's biophilia. You will recall that Fromm's biophilia features a love of life itself, a love of nature, and a love of being human. Fromm's biophilia proposes a personal-societal structure that is based on six principles of "human needs." These are:

1. **Relatedness:** Relating to other people and loving productively
2. **Transcendence:** Rising above the animal level of creatureliness and becoming active creators
3. **Rootedness:** Feeling that we belong
4. **Sense of identity:** Becoming aware of ourselves as separate and unique individuals
5. **Frame of orientation and object of devotion:** Having a stable and consistent frame of reference to organize perceptions and make sense of our environment
6. **Excitation and stimulation:** Actively striving for a goal rather than simply responding (Engler 2008: 137).

Fromm's biophilia incorporates topophilia, deep ecology, and spiritual ecology, along with a gusto for living human life to the fullest, *within bounds of ethical reason*. Combine this with Naess' recognition that human beings are the only animal species "with the intellectual capacity to limit its numbers consciously and live in an enduring, dynamic equilibrium with other forms of life" (Naess 1989: 23). According to Naess, human beings "can perceive and care for the diversity of their surroundings. Our

biological heritage allows us to delight in this intricate, living diversity. This ability to delight can be further perfected, facilitating a creative interaction with the immediate surroundings” (Naess 1989: 23).

In contrast to humans who embrace biophilia, topophilia and deep ecology are the other category of humans who seem to not place much value in their own lives, the lives of other species, or the “miracle of life” itself. Such people often express a nihilistic, fatalistic, cynical and amoral view of existence. To them, nothing is sacred or worth saving. Life and consciousness? A mere happenstance that brings with it more curses than blessings. War and ecocide? Life is not a bowl of cherries...get over it. Big oil company poisons an entire ecosystem? Oh well, we all drive cars, what are you gonna do about it? Such people live without ecological restraint, and they seem to revel in excess.

Technological society not only alienates humans from the rest of Nature but also alienates humans from themselves and from each other. It necessarily promotes destructive values and goals which often destroy the basis for stable viable human communities interacting with the natural world. The technological worldview has as its ultimate vision the total conquest and domination of Nature and spontaneous natural processes – a vision of a “totally artificial environment” remodeled to human specifications and managed by humans *for* humans. (Devall and Sessions 1985: 48)

The following two tables compare opposing worldviews – one with an anthropocentric focus, the other with a deep ecology focus:

| Dominant Worldview | Deep Ecology |
|--|--|
| Dominance over Nature | Harmony with Nature |
| Natural environment as resource for humans | All nature has intrinsic worth/biospecies equality |
| Material/economic growth for growing human population | Elegantly simple material needs (material goals serving the larger goal of self-realization) |
| Belief in ample resource reserves | Earth “supplies” limited |

| | |
|--|---|
| High technological progress and solutions | Appropriate technology; nondominating science |
| Consumerism | Doing with enough/recycling |
| National/centralized community | Minority tradition/bioregion |

Table 2. The dominant worldview as compared with deep ecology (Devall and Sessions 1985: 69).

| Industrial Age | Ecological Age |
|--------------------------------------|----------------------------|
| Conquest of nature | Living as part of nature |
| Dominion, control | Co-evolution, symbiosis |
| Heroic individualism | Ecological consciousness |
| Exploitation and management | Stewardship, restoration |
| Anthropocentric and humanist | Biocentric or ecocentric |
| Nature has instrumental value | Nature has intrinsic value |

Table 3. The role of the human, as perceived with an industrial mindset versus an ecological mindset (Metzner 1999: 176).

According to Naess (1973), deep ecology principles should immediately be implemented by policymakers, scholars, scientists, and the general population if humans and non-humans are to flourish rather than deteriorate:

Today, ecologists try to influence policy-making bodies largely through threats, through predictions concerning pollutants and resource depletion, knowing that policy-makers accept at least certain minimum *norms* concerning health and just distribution. But it is clear that there is a vast number of people in all countries, and even a considerable number of people in power, who accept as valid the wider norms and values characteristic of the Deep Ecology movement. There are political potentials in this movement which should not be overlooked and which have little to do with pollution and resource depletion. In plotting possible futures, the norms should be freely used and elaborated. (Naess 1973: 99)

Critiques of Deep Ecology

Murray Bookchin, co-founder of the Institute for Social Ecology, is one of deep ecology's fiercest opponents (Sale 1988). Bookchin accuses deep ecologists of being "barely disguised racists, survivalists, macho Daniel Boones, and outright social

reactionaries who use the word ecology to express their views” (Bookchin 1987). He describes deep ecology as “a vague, formless, often self-contradictory, and invertebrate thing” that has “parachuted into our midst quite recently from the Sunbelt's bizarre mix of Hollywood and Disneyland, spiced with homilies from Taoism, Buddhism, spiritualism, reborn Christianity, and in some cases eco-fascism” (Bookchin 1987). Bookchin criticized deep ecology for failing to address what he considered to be the roots of our ecological problems – social inequalities, authoritarianism and hierarchy.

Ynestra King, an “ecofeminist” and founding member of the committee on Women, Population and the Environment (Silliman and King 1999), similarly described deep ecology as “a philosophy utterly bereft of compassion for human beings, with no analysis of U.S. imperialism, corporate capitalism, the debt of the Third World to the First and the enforced growing of cash crops to pay our banks as the causes of famine in the Third World and enormous suffering in Central America” (King 1987: 731).

According to King, deep ecology:

...ignores the structures of entrenched economic and political power within society, concentrating exclusively on self-realization and cultural transformation, taking the side of nature over culture, thereby insisting that human beings conform to the laws of nature as understood by deep ecologists. This dualistic thinking is opposed by ecofeminism and by social ecology, both of which assert that the domination of women in society precedes the domination of nonhuman nature and that we must challenge domination within society in order not only to free ourselves but to achieve our ecological objectives. (King 1987: 730)

Indeed, many critics of deep ecology accuse the philosophy of “masking the *political* nature of environmental degradation” (Pepper 2003: 3). However, as noted in a quote above, Naess acknowledged the political nature of ecological problems and recognized deep ecology’s potential in the political arena. Further, in his description of

the principles of the deep ecology movement, Naess addressed problems of hierarchy and social exploitation:

Ecologically inspired attitudes therefore favour diversity of human ways of life, of cultures, of occupations, of economies. They support the fight against economic and cultural, as much as military, invasion and domination, and they are opposed to the annihilation of seals and whales as much as to that of human tribes or cultures.

Diversity of human ways of life is in part due to (intended or unintended) exploitation and suppression on the part of certain groups. The exploiter lives differently from the exploited, but both are adversely affected in their potentialities of self-realization. The principle of diversity does not cover differences due merely to certain attitudes or behaviours forcibly blocked or restrained. The principles of ecological egalitarianism and of symbiosis support the same anti-class posture. The ecological attitude favours the extension of all three principles to any group conflicts, including those of today between developing and developed nations. The three principles also favour extreme caution towards any over-all plans for the future, except those consistent with wide and widening classless diversity. (Naess 1973: 96-97)

Regardless of the critics, Naess remained ever hopeful that humans:

...have the potential for extending [their] sense of identity (identification) to include animals, plants, biotic communities, ecosystems, the entire Earth. The destiny of humankind is seen not in the domination and control of nature, but in the special quality of human consciousness, its unique reflectivity and toolmaking creativity. Living systems of all kinds are valued intrinsically, in and for themselves—not instrumentally, as resources to be exploited, managed, or conserved. (Metzner 1999: 176)

Buddhism: A Way of Life, Not a “Religion”

Buddhism is often categorized as a “religion,” but for the purposes of this thesis, Buddhism is a lifestyle based on ethical, moral and practical ideas rather than on faith or creed. Buddhism “does not stipulate social or religious rules. Nor does it demand a particular creed. It simply offers a ‘way’ for individuals to perceive, understand and take

responsibility for themselves, and ultimately for others” (Byrne 2006: 117). This thesis adheres to the following definition of Buddhism:

Buddhism is not a religion; it is a way of life. It teaches the moral and ethical conduct of lay life for the happiness of oneself and the welfare of the community. The Buddhist doctrines, which are designed to formulate an intricate system of analyzing human life and the intrinsic nature of things, are based on reasoning and rational thinking... The Buddhist philosophy is not based on an initial act of faith. (Mendis 1993)

This thesis is not focused on religious studies or religious geography, but it is important for the reader to be familiar with some Buddhist concepts and heritage. The two main traditions of Buddhism are Theravada (meaning “school of the elders”) and Mahayana (“the great vehicle”), with Theravada being the older of the Buddhist traditions (Robinson, Johnson, and Thanissaro Bhikkhu 2005). Another tradition, Vajrayana (or Tantric), is sometimes incorporated into the Mahayana tradition – other times, it is considered a third major tradition. The case study presented in this M.Sc. focuses on Theravada Buddhism but the literature herein is from diverse Buddhist sources, with an emphasis on the Thai Forest Buddhist tradition.

Core Buddhist Teachings

Though there are many types of Buddhism, they all share certain core teachings (Sponsel and Natadecha-Sponsel 2008), including the Four Noble Truths, the Five Precepts, and the Noble Eightfold Path. These tenets are the basis of all Buddhist teachings, and it is useful for us to have a basic understanding of them, as follows:

The Four Noble Truths

1. **There is suffering.** Birth, aging, sickness, death, sorrow, lamentation, pain, distress, despair, association with the unbeloved, dissociation from loved ones, and not getting what you want are forms of suffering inherent to human existence.

2. **The origin of suffering is being attached to desire.** There are three kinds of desire: 1) wanting sense pleasures through the body or the other senses, and seeking things to excite or please your senses; 2) wanting to become something so much that you are caught in a realm of ambition and attainment (for example, trying to become wealthy); and 3) the desire to get rid of objects or conditions.
3. **There is a way to liberate oneself from suffering.** The way is to reject, relinquish, leave and renounce craving and desire.
4. **The way to liberate oneself from suffering is by following the Noble Eightfold Path.** (Sumedho 1992; Thanissaro Bhikkhu 1999b)

The Noble Eightfold Path is the “way to liberate oneself from suffering” that is referred to in the fourth Noble Truth. It is an all-encompassing guide for human action and thought that can reduce suffering. The following passage is a translation of the Buddhist Pali Canon (the foundational “sacred text” of Buddhism) that features the Buddha (“The Blessed One”) explaining the Eightfold Path to monks:

The Blessed One said, "Now what, monks, is the Noble Eightfold Path? Right view, right resolve, right speech, right action, right livelihood, right effort, right mindfulness, right concentration.

"And what, monks, is right view? Knowledge with regard to stress, knowledge with regard to the origination of stress, knowledge with regard to the stopping of stress, knowledge with regard to the way of practice leading to the stopping of stress: This, monks, is called right view.

"And what is right resolve? Being resolved on renunciation, on freedom from ill will, on harmlessness: This is called right resolve.

"And what is right speech? Abstaining from lying, abstaining from divisive speech, abstaining from abusive speech, abstaining from idle chatter: This, monks, is called right speech.

"And what, monks, is right action? Abstaining from taking life, abstaining from stealing, abstaining from unchastity: This, monks, is called right action.

"And what, monks, is right livelihood? There is the case where a disciple of the noble ones, having abandoned dishonest livelihood, keeps his life going with right livelihood: This, monks, is called right livelihood.

"And what, monks, is right effort? (i) There is the case where a monk generates desire, endeavors, activates persistence, upholds & exerts his intent for the sake of the non-arising of evil, unskillful qualities that have not yet arisen. (ii) He generates desire, endeavors, activates persistence, upholds & exerts his intent for the sake of the abandonment of evil, unskillful qualities that have arisen. (iii) He generates desire, endeavors, activates persistence, upholds & exerts his intent for the sake of the arising of skillful qualities that have not yet arisen. (iv) He generates desire, endeavors, activates persistence, upholds & exerts his intent for the maintenance, non-confusion, increase, plenitude, development, & culmination of skillful qualities that have arisen: This, monks, is called right effort.

"And what, monks, is right mindfulness? (i) There is the case where a monk remains focused on the body in & of itself — ardent, aware, & mindful — putting away greed & distress with reference to the world. (ii) He remains focused on feelings in & of themselves — ardent, aware, & mindful — putting away greed & distress with reference to the world. (iii) He remains focused on the mind in & of itself — ardent, aware, & mindful — putting away greed & distress with reference to the world. (iv) He remains focused on mental qualities in & of themselves — ardent, aware, & mindful — putting away greed & distress with reference to the world. This, monks, is called right mindfulness.

"And what, monks, is right concentration? (i) There is the case where a monk — quite withdrawn from sensuality, withdrawn from unskillful (mental) qualities — enters & remains in the first jhana: rapture & pleasure born from withdrawal, accompanied by directed thought & evaluation. (ii) With the stilling of directed thoughts & evaluations, he enters & remains in the second jhana: rapture & pleasure born of concentration, unification of awareness free from directed thought & evaluation — internal assurance. (iii) With the fading of rapture, he remains equanimous, mindful, & alert, and senses pleasure with the body. He enters & remains in the third jhana, of which the Noble Ones declare, 'Equanimous & mindful, he has a pleasant abiding.' (iv) With the abandoning of pleasure & pain — as with the earlier disappearance of elation & distress — he enters & remains in the fourth jhana: purity of equanimity & mindfulness, neither pleasure nor pain. This, monks, is called right concentration." (Thanissaro Bhikkhu 1996)

Related to the Eightfold Path is a fundamental set of “rules” for Buddhist practitioners to follow. These rules are usually called the “Five Precepts,” although different scholars and teachers may use other terminology. They are as follows:

Reverence For Life

Aware of the suffering caused by the destruction of life, I am committed to

cultivating the insight of interbeing and compassion and learning ways to protect the lives of people, animals, plants, and minerals. I am determined not to kill, not to let others kill, and not to support any act of killing in the world, in my thinking, or in my way of life. Seeing that harmful actions arise from anger, fear, greed, and intolerance, which in turn come from dualistic and discriminative thinking, I will cultivate openness, non-discrimination, and non-attachment to views in order to transform violence, fanaticism, and dogmatism in myself and in the world.

True Happiness

Aware of the suffering caused by exploitation, social injustice, stealing, and oppression, I am committed to practicing generosity in my thinking, speaking, and acting. I am determined not to steal and not to possess anything that should belong to others; and I will share my time, energy, and material resources with those who are in need. I will practice looking deeply to see that the happiness and suffering of others are not separate from my own happiness and suffering; that true happiness is not possible without understanding and compassion; and that running after wealth, fame, power and sensual pleasures can bring much suffering and despair. I am aware that happiness depends on my mental attitude and not on external conditions, and that I can live happily in the present moment simply by remembering that I already have more than enough conditions to be happy. I am committed to practicing Right Livelihood so that I can help reduce the suffering of living beings on Earth and reverse the process of global warming.

True Love

Aware of the suffering caused by sexual misconduct, I am committed to cultivating responsibility and learning ways to protect the safety and integrity of individuals, couples, families, and society. Knowing that sexual desire is not love, and that sexual activity motivated by craving always harms myself as well as others, I am determined not to engage in sexual relations without true love and a deep, long-term commitment made known to my family and friends. I will do everything in my power to protect children from sexual abuse and to prevent couples and families from being broken by sexual misconduct. Seeing that body and mind are one, I am committed to learning appropriate ways to take care of my sexual energy and cultivating loving kindness, compassion, joy and inclusiveness – which are the four basic elements of true love – for my greater happiness and the greater happiness of others. Practicing true love, we know that we will continue beautifully into the future.

Loving Speech and Deep Listening

Aware of the suffering caused by unmindful speech and the inability to listen to others, I am committed to cultivating loving speech and compassionate listening

in order to relieve suffering and to promote reconciliation and peace in myself and among other people, ethnic and religious groups, and nations. Knowing that words can create happiness or suffering, I am committed to speaking truthfully using words that inspire confidence, joy, and hope. When anger is manifesting in me, I am determined not to speak. I will practice mindful breathing and walking in order to recognize and to look deeply into my anger. I know that the roots of anger can be found in my wrong perceptions and lack of understanding of the suffering in myself and in the other person. I will speak and listen in a way that can help myself and the other person to transform suffering and see the way out of difficult situations. I am determined not to spread news that I do not know to be certain and not to utter words that can cause division or discord. I will practice Right Diligence to nourish my capacity for understanding, love, joy, and inclusiveness, and gradually transform anger, violence, and fear that lie deep in my consciousness.

Nourishment and Healing

Aware of the suffering caused by unmindful consumption, I am committed to cultivating good health, both physical and mental, for myself, my family, and my society by practicing mindful eating, drinking, and consuming. I will practice looking deeply into how I consume the Four Kinds of Nutriment, namely edible foods, sense impressions, volition, and consciousness. I am determined not to gamble, or to use alcohol, drugs, or any other products which contain toxins, such as certain websites, electronic games, TV programs, films, magazines, books, and conversations. I will practice coming back to the present moment to be in touch with the refreshing, healing and nourishing elements in me and around me, not letting regrets and sorrow drag me back into the past nor letting anxieties, fear, or craving pull me out of the present moment. I am determined not to try to cover up loneliness, anxiety, or other suffering by losing myself in consumption. I will contemplate interbeing and consume in a way that preserves peace, joy, and well-being in my body and consciousness, and in the collective body and consciousness of my family, my society and the Earth. (Nhat Hanh 2009)

The abovementioned explanation of the five precepts is a modernized version that includes more explanation, extrapolation and different means of expression than more traditional versions. The traditional version of the five precepts is:

1. I undertake the precept to refrain from destroying living creatures.
2. I undertake the precept to refrain from taking that which is not given.
3. I undertake the precept to refrain from sexual misconduct.
4. I undertake the precept to refrain from incorrect speech.
5. I undertake the precept to refrain from intoxicating drinks and drugs which lead to carelessness. (Bullitt 2005b)

There is an extension of the five precepts called the Eight Precepts; these are observed by laypeople “during periods of intensive meditation practice” and during some Buddhist holidays (Bullitt 2005a). They are also observed by people in candidacy to become monks and nuns, though these individuals often have a more strict set of rules to follow. The eight precepts narrow the third precept (abstaining from sexual misconduct) to prohibiting *any* sexual activity. The additional three precepts are:

6. abstaining from eating after noon;
7. abstaining from dancing, singing, music, unseemly shows, using garlands, perfumes, unguents, and things which tend to beautify and adorn the person; and
8. abstaining from using high and luxurious seats and beds (Wijayaratna 1990: 181).

Another central Buddhist doctrine is the “Middle Way” or “Middle Path,” which advises a balance between the extremes of self-indulgence and self-mortification (Park 2005). The Middle Way teaches “the importance of simplicity in living, that attachment and craving for material wealth and goods stands in the way of liberation” (Egri 1997). When applied, the Middle Way’s emphasis on detachment from material things translates to less consumption, less greed, and less anger and suffering for humans and non-humans alike (Nhat Hanh 2008; Van Dyke 2008).

Is Buddhism “Green?”

Buddhism is often said to be one of the world’s most ecocentric religions (Galtung 1988; Sponsel and Natadecha-Sponsel 1993). Its ecocentrism puts Buddhism at the “forefront of modern environmental movements” (Sherwood 2003: 36). Proponents of so-called “Green Buddhism” often refer to fundamental Buddhist ideals in their discourse on how Buddhism can serve as a viable alternative paradigm to guide human

motivation and interaction with nature, other humans, and non-human species (Daniels 2010). Green Buddhists see these principles as “critical for providing practical as well as moral guidelines for ecological conservation” (Darlington 1998: 1). According to Stephanie Kaza, a Professor of Environmental Studies at the University of Vermont, “the central Buddhist teachings naturally encourage an ecological awareness and thus serve as ethical criteria for community practices” (Kaza 1991: 32).

Sulak Sivaraksa, a prominent Thai Buddhist figure and social activist, agrees with Kaza:

The teaching of the Buddha offers much to mitigate the world’s suffering. For more than fifty years, I have helped found seed projects, each of which has a material and spiritual dimension. These projects are informed by the four noble truths and demonstrate ways in which the application of wisdom to social conditions can generate justice, peace, and ecological balance. (Sivaraksa 2009: 83)

What’s more, “Buddhism values a peaceful life in which one relates harmoniously to all sentient beings and the environment” (Sivaraksa 2009: 83). It “tirelessly advocates the virtues of non-greed, non-hatred and non-delusion in all human pursuits...and commends frugality as a virtue in its own right” (de Silva 1992: 22). These virtues are lacking in most modern societies; indeed, Lily de Silva, a professor of Pali and Buddhist Studies at the University of Peradeniya in Sri Lanka, states that:

In our greed for more and more possessions, we have adopted a violent and aggressive attitude towards nature. Forgetting that we are a part and parcel of nature, we exploit it with unrestrained greed, thereby alienating ourselves from it as well. The result is the deterioration of humanity’s physical and mental health on the one hand, and the rapid depletion of non-replenishable natural resources and environmental pollution on the other. [The Buddhist teachings] maintain that the moral degeneration of humanity leads to a decrease in lifespan and the depletion of natural resources. (de Silva 1992: 28)

De Silva says human beings must learn to understand nature so that “they can use natural resources while living harmoniously with nature” (de Silva 1992: 21):

By understanding the working of nature—for example, the seasonal rainfall pattern, methods of conserving water by irrigation, the soil types, the physical conditions required for growth of various food crops—humans can get better returns from their farming. But this learning has to be accompanied by moral restraint if we are to enjoy the benefits of natural resources for a long time. Humanity must learn to satisfy its needs and not feed its greeds. The resources of the world are not unlimited whereas human greed knows neither limit nor satiation. (de Silva 1992: 21)

Buddhism is similar to deep ecology in that it provides an analytical system that unmasks the *causes* of anthropogenic environmental problems:

The most important construction of modern culture which Buddhism is well-placed to analyse, assess and perhaps dismantle is the Romanticized individual self-fed by a mass of technology designed to reshape the physical world. Until now, the environmental movement has mostly focused on the results rather than the causes of this situation... This misplaced focus is... largely due to environmentalism’s confused allegiance to the political visions of the last century. (Timmerman 1992: 74)

Biocentrism, Interconnectedness and “Non-Harm”

Additionally, Buddhism adheres to an ecocentric-biocentric ethic instead of the dominant anthropocentric ethic. Anthropocentrism “conveys a notion of the injustice and unfairness in using the non-human world as an instrument and valuing it for this reason, rather than valuing the non-human world for its intrinsic value” (de Silva 1998: 110). In Buddhism, “both the beauty of nature and that of animal life [are] values independent of human utility” (de Silva 1998: 110). Buddhist teachings strongly emphasize the valuing of non-human life. In fact, the Buddha was “concerned with...the unintentional destruction of life by farmers in activities like ploughing, digging, cutting down trees, destroying vegetable growth, digging soil” (de Silva 1998: 118). Indeed, Buddhist monks

are prohibited from activities (such as digging in the ground) that would unintentionally injure living creatures. Monks are even prohibited from traveling during the rainy season “as this would cause harm to minute creatures” (de Silva 1998: 119). Additionally, Buddhism rules out professions of slaughtering and fishing for laypeople – these professions break the first precept and do not qualify as right livelihood.

In order to achieve true Right Livelihood, your employment must not break any of the five precepts. Contributing to any occupation that supports the breaking of the precepts (for example, the arms, drug, and flesh trades) is also considered wrong action (Nhat Hanh 1998). It is also wrong to contribute to exploitation: “To drink Coca Cola or Pepsi Cola in Siam is not just to ingest junk food, but to support exploitative values. Through their advertising, Pepsi and Coke make the villagers feel ashamed to offer rainwater to drink; they feel they must offer us something in a bottle. And each bottle costs them a full day’s earnings” (Sivaraksa 2009: 86).

Contrary to popular belief, many Buddhists are allowed to consume meat, although Theravadin monks are prohibited from accepting meat if they suspect the animal was killed for the purpose of feeding a monk (Wijayaratna 1990). Many believe that Buddhism mandates vegetarian or vegan diets; some Buddhist traditions (such as Chinese Buddhism), do mandate a diet free of animal products, but this is not the case across all Buddhist traditions. However, many Buddhists choose not to eat meat for environmental and ethical reasons (Kaza 1997; Nhat Hanh 2008):

Today, Buddhist groups with an environmentalist orientation advocate vegetarianism. In fact one of those groups has given us a “strong version of the first precept”. In a celebrated document, *For A Future To Be Possible* [Nhat Hanh et al 1993: 13], it is stated: “Aware of the suffering caused by the destruction of life, I vow to cultivate compassion and learn ways to protect the lives of people, animals, plants, and minerals, I am determined not to kill, not to let others kill,

and not to condone any act of killing in the world, in my thinking, and in my way of life. (de Silva 1998: 121)

This proclamation is related to the doctrine of *ahimsa*, meaning “non-harm” or “non-violence.” Ahimsa is essentially the same as the first precept (restraint from killing), and is a central part of Buddhist teachings, as is the concept of *metta* or “loving kindness.” Doing violence to other beings “within the biotic community is immoral and, given the precept of interdependence, self-destructive” (Egri 1997: 413-414). According to Padmasiri de Silva, a Research Fellow at the Centre for Studies in Religion at Monash University, “The Buddhist analysis of the moral implications of killing, inflicting suffering on living creatures, and developing a non-violent attitude to the natural environment forms a coherent moral perspective” (de Silva 1998: 118).

Similarly, the precept of “not stealing” carries over into human-nature interactions. For example, robbing a bank is morally and ethically wrong, and so is stealing clean air, clean water, and a healthy earth from future generations. Disequilibrating society steals “natural resources” and a healthy planet from future generations of humans and non-human species. In this way, Buddhist beliefs are somewhat similar to “sustainability” (Mendis 1993; Nhat Hanh 2008). Buddhist scholars say the Buddha and his followers recognized the importance of preserving the natural environment and all of its non-human inhabitants:

...the Buddha attached great importance to [the construction of parks and groves, reforestation], the building of dams and wells for preserving water. He also requested the kings to take the lead in building parks, planting shade trees and keeping up a healthy environment for the people... the animals too provide a central ingredient of the biotic community with the plants and the humans. (de Silva 1998: 125-126)

In general, the Buddhist monastic community articulates a desire to follow ecologically sound principles. In fact, Sponsel and Natadecha-Sponsel provide several attributes of an “ideal monastic community” that may serve as a template for a “green society” (from Sponsel and Natadecha-Sponsel 1997: 49):

1. *Population*: A small and controlled population
2. *Communality*: Egalitarian communal life based on mutual respect and cooperation
3. *Resources*: Sufficiency and sustainability by limiting resource consumption to satisfying basic needs and by self-restraint in wants and desires
4. *Economy*: Cooperative
5. *Environment*: Limit environmental impact and practice stewardship with nature including the temple and vicinity as sacred space
6. *Philosophy*: Holistic (systems), organic (ecology), and monistic (unity of humans and nature) worldview based on enhancing quality of life rather than accumulating quantity of material things (being rather than having)
7. *Values*: Reverence (inherent worth), compassion or loving-kindness, and nonviolence toward all life to promote harmony within the society and between society and nature
8. *Self*: “Deep self” including self-examination, self-realization, self-fulfillment, and self-spirituality through meditation and eventually extinction of self (Sponsel and Natadecha-Sponsel 1997: 49)

These attributes reflect the interdependence and interconnectedness of all living things- a central tenet of Buddhist teachings. According to Buddhadasa Bhikkhu, a prominent Buddhist teacher, the first law of the natural world is interdependence (Sivaraksa 2009). “When we are in harmony with nature, we feel nurtured and profoundly content” (Sivaraksa 2009: 11). Indeed, Buddhists recognize that humans depend on Nature for the requisites – food, clothing, shelter, and medicine. As Sivaraksa stated in an interview on *Democracy Now!*:

We are interrelated. Without you, could not be me. We are not opposing. We are not competing. That’s the Buddhist concept. The same. Without the trees, we cannot live. Without the earth, we cannot live. If you use that Buddhist

approach—you don't have to become Buddhist—you use that Buddhist approach, you change your entire attitude towards life, towards Mother Earth, towards others. (Goodman 2010)

Buddhist themes of interconnectedness and interdependence are often used in the analysis of the roots of anthropogenic environmental problems (Daniels 2010). In some instances, the idea of interconnectedness of all beings is used as a motive for “living in harmony” with the natural environment:

True development must be in harmony with the needs of people and the rhythms of the natural world. Humans are a part of the universe, not its masters. This awareness of the interrelatedness of all beings, as expressed in Buddhism, is lived in the traditions of indigenous peoples throughout the world. They do not separate the political from the personal or spiritual, but well in awareness of the sacredness of all life. (Sivaraksa 2009: 32)

Those who believe in the usefulness and importance of interconnection of humans and nature are not limited to religious studies scholars, anthropologists, or other social scientists. Physical scientists like biologist Michael Soule, atmospheric chemist James Lovelock and ecologist Stephen Harding recognize the interconnectedness of all things in existence – an idea shared by individuals of varying spiritual practices and beliefs (Darlington 1998; Weeratunge 2000; Strand 2005; Harding 2006; Taylor 2007).

As Harding stated:

We don't have any answers, but by looking at the situation through Gaian eyes we can experience a delightful intuition of radical interconnectedness. There may well be a link between such apparently disconnected events such as the howls of a wolf pack, the very wind which ruffles their fur and the snow which gently covers the tracks of the stealthy quarry that they are setting out to hunt—all of this awakens a feeling of the astonishing wisdom that lies at the heart of our animate Earth. (Harding 2006: 148)

Or, as former Catholic priest Matthew Fox stated in a paper titled “My final statement before being silenced by the Vatican”:

Mother Earth is in jeopardy, caused by the anthropocentrism of religion, education, and science during the past three centuries. A new beginning is required, centered on the *sacredness of the planet*... [but] worship that bores people is a sin. Worship is meant to *awaken*, to challenge, to delight and to empower. We believe all adults can touch the divine child that exists within us. (Fox 1988: 50)

Critiques of Buddhism as an Environmental Ethic

Of course, not everyone agrees that a Buddhist ethic is equivalent to an environmental ethic, or that an environmental ethic can be developed from Buddhist teachings. Some scholars find the first Noble Truth (suffering exists) to be life-negating. For example, Lambert Schmithausen, a Buddhist scholar, argues that Buddhists seek liberation *from* nature rather than working towards *preserving* nature (Schmithausen 1997). It is true that some Buddhists see qualities in Nature that reflect the “human drama of life and death” (de Silva 1998: 125). For example, Buddhists see Nature as “random, contingent, blind, disastrous, wasteful, clumsy, ugly, full of suffering,” but they also see Nature as “orderly, prolific, efficient, fit, exuberant, diverse, renewing in the midst of death” (Rolston 1992; de Silva 1998: 125).

The wilderness has long played an important, if ambivalent, role in the societies of South and Southeast Asia. On the one hand, it is a place of danger: wild animals, disease, outlaws, malevolent spirits, and treacherous temptations. On the other hand, it is where the Buddha attained Awakening, a place where truths transcending social conventions may be found and brought back to reform the social order. (Robinson, Johnson, and Thanissaro Bhikkhu 2005)

Other critics claim that using Buddhism to deal with anthropogenic environmental problems is anachronistic; contemporary environmental problems, such as greenhouse gas emissions and dependency on petroleum, did not exist at the time of the Buddha (Holder 2007). Even though pollution and related issues we face today were unheard of

2,500 years ago, Buddhists still stressed the importance of cleanliness, both “in the person and in the environment” (de Silva 1992: 25). The common agents of pollution back then were saliva, urine and feces; monks were prohibited from polluting grass and water with those agents. It was recognized that grass served as food for many animals, and that water needed to be used carefully and wisely so that “others who followed could use it with the same degree of cleanliness” (de Silva 1992: 25).

Contrary to these critics’ beliefs, engaged Buddhists – a group of socially and environmentally activist Buddhist monks and laypeople – believe that traditional Buddhist teachings are indeed applicable to current environmental problems.

Their movement does not advocate a new form of Buddhism, they argue, but is an effort to put the basic ideas of the religion in terms that meet the needs of the modern world. They see this movement as one of “radical conservatism,” returning to the original teachings of the Buddha as applied to contemporary situations. This movement is not limited to Thailand, but is part of a growing international Buddhist movement that goes beyond national and sectarian differences to promote ecological awareness. (Darlington 1998: 5-6)

Others argue that Buddhists act compassionately towards nature out of self-interest, that Buddhism is a form of escapism, and that Buddhism does not provide a viable solution to environmental problems because if it did, so-called “Buddhist countries” like Thailand and Sri Lanka would be in better shape environmentally (Prince 1996; Schmithausen 1997). Theravada Buddhism, which emphasizes the renunciation of worldly affairs, is particularly prone to those first two accusations (Thanissaro Bhikkhu, personal communication, May 26, 2010). However, the belief held by Theravadin Buddhists is that it is necessary to first help oneself before helping others:

...in the Buddha's words, "it is not possible for one who is himself sunk in a mire to pull out another who is in the same situation. But it is possible for one who is not sunk in a mire to pull out another who is."... In other words, no one can give

effective help to others unless he has first helped himself. Nobody can solve for others problems that he has not yet solved for himself, and that is why self-development must precede altruistic activity. (Prince 1996)

Although monks are not supposed to be concerned with worldly affairs, engaged Buddhists “see environmental destruction as a crucial factor in their main concern – human suffering. They cannot avoid a certain degree of involvement in the former if they are to deal with the latter” (Darlington 1998: 11).

Regarding environmental degradation in Buddhist countries, some critics recognize that activities like deforestation may have come about “*in spite of Buddhism*, due to other reasons, including Western influence” (Schmithausen 1997: 3-4). In the case of Thailand, Buddhists are becoming increasingly involved in the fight to preserve the last remaining wilderness areas:

The “ecology monks” are those actively engaged in environmental and conservation activities and who respond to the suffering which environmental degradation causes. A major aim of Buddhism is to relieve suffering, the root causes of which are greed, ignorance, and hatred. The monks see the destruction of the forests, pollution of the air and water, and other environmental problems as ultimately caused by people acting through these evils, motivated by economic gain and the material benefits of development, industrialization, and consumerism. As monks, they believe it is their duty to take action against these evils. Their actions bring them into the realm of political and economic debates, especially concerning the rapid development of the Thai economy and control of natural resources. (Darlington 1998: 1)

The Thai Forest Buddhist Tradition

The Thai Forest Tradition, or *Kammatthana* (Meditation) tradition, is a lineage Buddhist tradition founded in the forests of northeastern Thailand during the early 1900s by Ajaan (meaning “teacher” in Thai) Mun Bhuridatto (Thanissaro Bhikkhu 1999a; Robinson, Johnson, and Thanissaro Bhikkhu 2005). Ajaan Mun and other early Thai

Forest monks were wandering ascetics whose “teachings came from personal experiences or directly from their teachers” (Tiyavanich 1997: 2). They were trained in “strict discipline and canonical meditation practices, set in the context of the dangers and solitude of the wilderness” (Thanissaro Bhikkhu 1999a).

In the context of this thesis, wilderness is defined as a place that is apparently or actually unaltered by anthropogenic activities. In a technical sense, it may be impossible to find a place untouched by anthropogenic activities, given the pervasive worldwide distribution of manmade chemicals, combustion byproducts, human infrastructure, jet trails, and the like. It may be that absolutely, truly pristine nature untouched by direct or indirect anthropogenic effects has disappeared from our planet (McKibben 1990).

For the monks and lay followers of the Thai Forest Tradition of Buddhism whose monastery in Southern California is the site I studied in this thesis, “wilderness” is a relatively undisturbed natural setting used by Thai Forest practitioners to escape human-dominated environments for the purpose of furthering ethical, meditative and contemplative activities. Meditation, as practiced in Thai Forest Buddhism, is the foundational skill that lay and monastic practitioners seek to master. Separating meditation from religious doctrines and goals that cannot be empirically tested, meditation can be seen as a psychological and physiological exercise (Story 1995). Thai Forest monks say the Buddhist Pali Canon indicates that the Buddha advised his followers to seek refuge in wilderness as an aid in using meditation to silence the mind and free it from standard human concerns, desires and suffering (Swearer 1998; Abbot of Wat Metta, personal communication, May 26, 2010)

As taught by Wat Metta's abbot, meditation includes a physical posture of sitting with right leg on top of the left leg, right hand on top of left hand in your lap, eyes closed. The mind is directed to pay attention only to the flow of breath in and out of the body. Random thoughts (packets of words, images, ideas) and feelings may arise but the meditator is not to actively resist them, nor is he or she to focus on or engage them. The goal is to allow the mind to become free of thoughts and feelings while remaining in "bare awareness." Meditators often use the term "mindfulness" to describe the mental state in which word-based thought recedes and the meditator's mind is grounded in awareness of the present moment, free of the ongoing rush of internal commentary, worries, and ideations typical of non-mindful awareness.

There are many kinds of meditation, and meditation has been studied medically. Many researchers say it produces a variety of beneficial human health effects (Grossman et al 2004; Chu 2010). The Thai Forest emphasis on wilderness meditation likely enhances these effects by placing meditators in an environment virtually free of anthropogenic disturbances. Other than occasions when dangerous wild animals or other stressors are present in natural environments, the Thai Forest recommendation to seek wilderness for meditation can be seen as a practical strategy for those seeking to transform their minds through formal meditation activities (Abbot of Wat Metta, personal communication, May 26, 2010).

The Thai Forest approach to wilderness gives Buddhists a chance to attempt an egalitarian non-harm relationship with nature (de Silva 1992; Sponsel and Natadecha-Sponsel 1997). This contrasts with usual human-environment interactions during which,

as geographer George Perkins Marsh so well described them, wherein humans go to a pristine place and substantially upset ecosystems integrity (Marsh 1864).

Thai Forest lineage masters are renowned for sitting quietly in meditation while man-eating tigers, deadly snakes or raging storms are in their immediate environment (Robinson, Johnson, and Thanissaro 2005). The monk's goal is to overcome fear, and to demonstrate that he can peacefully co-exist with native "dangerous" animals and in natural climate events without seeking to harm the animals or alter the landscape to hide from the weather.

It is important to note how closely this practice echoes deep ecology. Instead of going into an environment to impose their anthropogenic will on it, Thai Forest practitioners go there to exist in "bare awareness" without imposing their will on the place at all. They sit, they meditate, and they are aware of their surroundings. During rest, they recline on a mat on the ground. Their wilderness actions are as quiet, non-intrusive and benign as possible; the goal is to quiet the mind and silence desires, not to control animals, plants and terrain (Tiyavanich 1997).

Of course, Thai Forest Buddhists aren't the only people who see value in wilderness. Some view wilderness through anthropocentric eyes, seeing it primarily as a place that ecosystem services, recreation, hunting grounds, or as a place for coming of age rituals (Oelschlaeger 1991).

For transpersonal psychologists such as Carl Jung and ecopsychologists, wilderness is a place where humans witness what the world would be like without anthropogenic dominance. It's a place for us to reconnect with primal forces inside us that have been subdued by modern techno-industrial culture (Sabini 2008). Science backs the

ecopsychologist's belief that natural systems are integrated and balanced within a range of stasis (Harding 2006), but that humans are often out of balance psychologically and physiologically in part because they live disconnected from natural cycles and experiences with nature (Shepard 1998). The lack of connectedness with nature, and the realization that nature is being harmed by the anthropogenic experiment, creates in some a psychological vacuum or despair:

As industrial culture charges on, humans create ever-more-ingenious ways to avoid knowledge of or accept culpability for what is happening to ecosystems. We may seek to escape to anthropogenic place – shopping malls with programmed sound and conditioned air, into our domed stadiums with artificial grass and fluorescent light, into our interior selves. Or we may seek to escape to the outside – to theme parks or an electronic “virtual reality” of our own making and liking. (Aizenstat 1995: 93)

Contrast this with Thai Forest monks who find meaning “in the acts of daily life: walking for days in the wilderness; meeting with villagers who were sometimes supportive, sometimes suspicious; spending the nights in an umbrella tent beneath a tree, in a crude shelter, or in a cave; and contending with all sorts of mental and physical challenges” (Tiyavanich 1997: 2).

Thai Forest practitioners are known for their strict adherence to the *Vinaya* (monastic code), their asceticism, and emphasis on frugality; many members of this tradition “insist that their primary teacher has been the wilderness itself” (Robinson, Johnson, and Thanissaro Bhikkhu 2005: 167).

If one wanted to live a [wandering ascetic meditator] life and work toward spiritual liberation, the fear of ghosts and of wandering alone in the forest needed to be rooted out. One of the thirteen [ascetic] practices requires that practitioners stay in the forest for prolonged periods of time... Staying in the wild was a proven method for reducing and eventually eliminating [fear]. (Tiyavanich 1997: 79)

Thai Forest Monks in Wilderness with Wild Animals

In the wilderness, Thai Forest Buddhists were advised to be “ever cautious of lurking dangers, which forced him to be constantly alert... for elephants, tigers, clouded leopards, black panthers, bears, wild buffaloes, gaurs, bantengs, boars, and snakes” (Tiyavanich 1997: 79-80). Tigers were often the most dangerous of these animals, and “the monks regarded this animal with a mixture of fear and respect. Fear of tigers and the vivid imagining of oneself being devoured by tigers often drove the mind to one-pointed [concentration]” (Tiyavanich 1997: 80).

Believe it or not, the monks viewed such dangers as beneficial because it forced them to develop meditative consciousness and an equanimous, non-harm view of other sentient beings. “The liveliness and spontaneity of living in the wilderness domain appealed to them. They found it conducive to their meditation practice because the wild kept them alert. They also felt at home there. As [Ajān] Juan tells us, ‘The monks, novices, and wild animals shared the same area. Each did his own duty and we all coexisted peacefully’” (Tiyavanich 1997: 91). This peaceful coexistence sometimes astounded even the monks themselves. The monks were often surprised that the supposedly fearsome wild animals did not harm them; the animals seemed to have an “inexplicable forbearance toward forest monks” (Tiyavanich 1997: 94). As one Ajān stated: “Tigers never attack [wandering ascetic] monks. Often a tiger will just stalk past a [tent] or quietly lie down beside it, so close that the monk can hear its heavy breathing. The tiger simply ignores the monk” (Tiyavanich 1997: 94).

However, not all monks were so fortunate. Some “were killed by wild animals while traveling alone. Occasionally a [wandering ascetic] monk would find some

scattered robes and a bowl in a forest or cave. The monk might have died from disease or from an unlucky encounter with a tiger or python” (Tiyavanich 1997: 95). Nevertheless,

[t]he abodes of nature were the ideal places for monks to meditate, and the monks were able to feel one with nature. Also nature and animals often went together, and the monks who were very advanced in their meditation practice had no fear and dread of animals. Even today, the monks who live in forest hermitages and caves give us some insight into the ideal kind of attunement with nature that was the ideal of the monks of the time of the Buddha. (de Silva 1998: 117-118)

The Thai Forest Tradition teaches that lay Buddhists also benefit from wilderness experiences: “Nature, as the cradle of the Buddhist forest culture, is a concept which, in its experiential dimension, has a resonance in the spiritual and aesthetic experiences of the monks. But the laymen too partake in giving shape and form to the fauna and flora, the parks and groves, and the mountains and rivers... such activities are charitable and meritorious” (de Silva 1998: 125).

Though wilderness experiences are foundational to the forest tradition, monks are also expected to interact with laypeople, as the laymen and laywomen are the individuals who provide the monks’ sustenance. According to Ajaan Mun, the solitude of the forest “should be used to develop mindfulness; it was not a place for isolation and escape. Villages, town, and cities supplied monks with a constant stream of annoying challenges they could use to measure their accomplishment” (Tiyavanich 1997: 128).

Previous Research

When I first became concerned about my ecological impact, and the impact of disequilibrium society, I searched for ways to immediately and radically change my life so I lived in harmony with my environmental ethics. Eventually, I came to the conclusion that I would need to exit disequilibrium society and live in a social system based on

principles similar to deep ecology and Fromm's biophilia. In exploring that option, and in considering a suitable case study site for this thesis, I discovered "communes" and "intentional communities."

Communes, Intentional Communities, and Ecovillages

There are many types of communes, and not all of them are guided by ecological or biophilial concerns. I focused on those that were chartered as an attempt to create low ecological impact, egalitarianism and increases in human health and happiness.

"For the past centuries, urban, industrialized societies have been repressing communal values and experiences. The dominant industrial culture has suppressed intimate, sharing, cooperative relations with those outside one's immediate family; living and working in close communal unity has been difficult" (Kanter 1973: xi). Because of that repression, people have long sought utopic lifestyles, dreaming of living life in a society "better than the one they currently inhabit" (Kanter 1973: 1).

There are almost as many varieties of communes as there are types of people (Kanter 1973), but most communes share general features:

They are voluntary; they separate from the larger conventional society and conduct relations with it as a unit; they place values, moral concerns, group solidarity, and relationships above instrumental or economic purposes; they are identifiable as entities, with boundaries, a territory, and a consciously limited membership; they share resources; and they constitute a primary group, in which people interact with each other on a generalized basis, as "wholes," rather than in terms of specific roles. (Kanter 1973: xiii)

Ecovillages or eco-communities are a type of commune whose inhabitants claim to be intentionally living ecologically low-impact lifestyles. These communities are often comprised of:

...as few as 150 and as many as 5000 people, living together in a village-style setting. They are structured to provide security and a sense of belonging and shared purpose, and are small enough so that people are able to participate in making decisions that affect their own lives as well as that of the community. In this way they differ quite purposefully from modern suburban settings that many feel result in more isolated and anonymous living. (Sullivan 2008: 22)

This type of commune is becoming increasingly popular, as people turn to eco-communities as a “viable alternative to urban life” (Sevier 2008: 36). Residents say they aim to “be in sympathy with nature,” live off the land, share resources, and re-use and recycle materials (Cossham 2007: 36).

At the heart of [ecovillage] rationale is the desire to construct human settlements that tread less heavily on the Earth. They promote a greener way of life, with a strong impulse towards greater communal self-sufficiency. Most attempt to reduce the need for fossil fuels, grow their own food, compost, use carpools, build from local or green materials and often make use of highly efficient ecological technologies for heating, electrical and water systems. Sharing cookers, cars, tools and common heating systems reduces environmental impact and saves money. As a way of life it embraces the conscious decision to live more simply, thereby consuming less. (Sevier 2008: 37)

Goals and Attributes of Alternative Communities

Some of the attributes that set ecovillages apart from other environmental initiatives are:

- Community is of central importance
- Shared values and the sharing of resources and facilities are the norm
- Ecovillagers are seeking to win back some measure of control over their resources (food, energy, livelihoods, houses)
- They are built by groups of people (rather than traditional developers or other official bodies) and are more or less entirely reliant on the resources, imagination and vision of the community members themselves
- Many act as centers of research, demonstration and, in most cases, training. (Sevier 2008: 37)

Additionally, ecovillages typically feature a street layout that is “usually specifically oriented to allow passive solar design for all sites, and roads are shared traffic zones, where children’s games and walkers have priority. Ecovillages are usually independent of standard infrastructure, like roads and sewers, and maintain their own roads, street lighting and services, such as water treatment and recycling plants” (Sullivan 2008: 23). They “are in service of a wider goal that goes far beyond a reduction in the use of natural resources... Above all, they encourage a sense of connection and responsibility to the natural world” (Sevier 2008: 37). Ecovillages demonstrate that humans can live in ways do less harm to the environment (Leitaert 2007; Kilian 2009), but they are “often in tension and conflict with larger society...[S]ome are too unstructured and fall apart easily, some require a great deal of order and regulation, and some involve trading privacy for intimacy. Each commune strikes its own balance and makes its own choices about what it will consider important and what it will give up” (Kanter 1973: 10).

Some communities are developed to be “self-sufficient” in food and energy sourcing. The Village Homes subdivision, for example, is an ecological housing project in Davis, California (Hopkins 2000). This community was developed in 1975 and consists of 240 homes on 63 acres of former farmland (Kourik 2005). At its inception, 80 percent of homes in the subdivision had food gardens with an average size of 55 feet x 85 feet. “Sixty to 75 percent of the hot water in each home is provided by a solar system, and solar provides a good percentage of space heating and cooling in all homes. Most of these solar systems are passive, meaning there are no moving parts” (Kourik 2005: 9).

Additionally, 70 percent of the population sorts their garbage for recycling (Hopkins

2000). The community is bordered by food trees (almonds, pineapple guavas, figs and plums), and each neighborhood in the development has its own orchards (Hopkins 2000).

The fruit trees were all part of the original design and were paid for by the developers. They are maintained by a crew which works for the homeowners association and are paid partly by income from selling the trees' produce, which fetches a high price at the local markets. Many of the orchards are underplanted with clover instead of grass which needs less maintenance and which fixes nitrogen to the trees. The landscaping of the area as a whole features a wide range of edible and otherwise useful plants, leading to levels of plant and animal diversity approaching those of natural ecosystems. (Hopkins 2000: 207)

Bhutan, Buddhist Ethics and the Environment

Is it possible for an entire nation to adopt principles that promote emotional, spiritual, sociocultural and environmental well-being? At least one country – Bhutan – seems to be trying. The former King of Bhutan, His Majesty Jigme Singye Wangchuck, declared that:

...the ultimate purpose of government is to promote the happiness of the people. He said that Gross National Happiness (GNH) is more important than Gross National Product. This is a promising new path, worth exploring. We need a concerted effort of scientists, economists, spiritual practitioners, and government leaders to operationalize it, to develop the kinds of yardsticks we need to judge human progress and human happiness (Sivaraksa 2009: 64).

The development path of Bhutan embraces “a philosophy and policy instrument that seeks to promote human development and *manage environmental* conservation within a sustainable strategy guided by Buddhist ethics” (Zurick 2006: 657).

Environmental conservation has long been a priority in Bhutan – the government of Bhutan recognizes that “long-term happiness cannot be achieved in a disequilibrium society” (Sivaraksa 2009: 66). “Sixty percent of the country is protected forest, and another 26 percent is protected land. Given this commitment to the environment, it makes

sense to include a measure of environmental integrity in calculating GNH” (Sivaraksa 2009: 66). Here, the level of environmental integrity includes species loss or gain, pollution, and environmental degradation (Sivaraksa 2009).

As I was considering ecovillages, communes and similar communities as possible case study sites, I became aware of Thai Forest Buddhism and was attracted to it because it had the characteristics of an eco-community along with tenets that mandated non-harm to nature and sentient beings. My thesis research as regards Wat Metta Forest Monastery avoided investigating the purely theoretical and religious tenets of Thai Forest Buddhism or the abstract connections between Buddhism and ecological thought, although specific aspects of those topics are relevant, and are explored to the degree necessary to link them to my focus on the human ecosystem model (HEM) and deep ecology. My Wat Metta research is a case study that examined the native and invasive flora and fauna at the monastery site, as well as the HEM of its human residents, to determine the monastery’s ability to serve as a model for moving away from disequilibrium society.

Prior Studies of Buddhist Centers in California

Existing literature on Buddhist monasteries and other Buddhist organizations is mostly theoretical, focused on religious aspects of practices such as meditation, and lacking a human ecology emphasis or environmental policy emphasis. Fortunately, there are at least two prior studies that deal with human ecology and environmental practices at Buddhist monasteries. Stephanie Kaza, who is currently a professor at the University of Vermont Environmental Program’s Rubenstein School of Environment and Natural Resources, authored one of the studies. In 1997, Kaza studied two Buddhist centers in California (Kaza 1997). One of the centers, Green Gulch Zen Center, is located just north

of San Francisco; it is still operational as this thesis is being written. The other site is Spirit Rock Meditation Center. Located in Marin County near San Rafael, California, Spirit Rock is still operating as a Buddhist retreat center at the time this thesis is being written.

The other relevant study is authored by Jeff Yamauchi, who at the time of the study (1997), was “in the process of incorporating a nonprofit educational course, to be known as ‘Earth Witness Foundation,’ that will focus on the development of an environmental program. The name ‘Earth Witness Foundation’ is derived from the moment the Buddha touched the earth as a sign of validating his enlightenment” (Yamauchi 1997: 259). Yamauchi apparently hoped that the leadership of Yokoji Zen Mountain Center (located near Los Angeles in rural Southern California) would participate in Earth Witness Foundation as a kind of case study in which Zen Mountain Center would be “an organization that will pay particular attention to carrying out its objectives effectively and appropriately” (Yamauchi 1997: 259).

Yokoji Zen Mountain Center (YZMC) was founded in 1981 by Taizan Maezumi Roshi as a summer retreat center for the Zen Center of Los Angeles, and is now a year-round Zen Center for residents and non-residents under the direction of the abbot, Tenshin Fletcher Roshi, according to YZMC’s website (Yokoji-Zen Mountain Center 2009a).

YZMC’s formal hierarchy resembles Wat Metta Forest Monastery in that an abbot supervises YZMC as a spiritual community that includes monks and laity. In contrast, the two sites reviewed by Kaza apparently do not serve as formal “monasteries” or temples; she reports no permanent monk communities or monastic emphasis at those

sites.

Green Gulch Farm Zen Center, also known as Green Dragon Temple (Soryu-ji), presents itself as a “Buddhist practice center in the Japanese Soto Zen tradition offering training in Zen meditation and ordinary work” (San Francisco Zen Center 2011b). It is one of three centers that collectively make up San Francisco Zen Center, which was founded by Shunryu Suzuki Roshi (San Francisco Zen Center 2011c). Spirit Rock is an independent Buddhist center and lacks the formal monk-laity structure seen at Wat Metta and YZMC.

Information from the websites of all three Buddhist organizations indicates ongoing concern for ecological issues related to site practices and management.

Ecological considerations informed the way that Yokoji developed over the years. Living in harmony with the land was not only a nice idea, but also a necessary reality for living in this mountain wilderness. Our water is drawn from two onsite wells, which are gravity fed into tanks that supply all our water outlets. The water is pure and clean, and without it we would not be able to survive up here. We are an off-grid community, drawing power from solar panels and wind turbines. We also have a back up generator for the winter months when there is too little light and wind. This life style permits us to live in a way that is totally dependant upon our environment. If there is not enough snow and rain in the year, we may be low on water. If there is too much cloud coverage, we may be low on power. The environment literally shapes the way we run the Center on a day-to-day basis. The valley in which the Zen Center lies is a great teacher to us, all year round. (Yokoji-Zen Mountain Center 2009a)

Yokoji is run on ecological principles. We are off-grid, primarily harnessing power from the sun and the wind, and using a diesel generator as back-up. We have two on-site wells which provide us with all of our water. Turn on any faucet at the Center and you will have natural, stone filtered mineral water on demand.

We have a strictly vegetarian kitchen which composts all food scraps, and an occasional vegetable garden to grow a small amount of produce with the compost we create. An orchard of apple and pear trees gives us an annual bounty of organic fruit. We try and use organic produce where possible and buy locally

when we can. We are an example of a small community that lives harmoniously with our environment. (Yokoji-Zen Mountain Center 2009b)

On its current website, Green Gulch management emphasizes its organic farm as a major feature of the center; residential farm apprenticeships and volunteer opportunities are offered for people wishing to learn or assist organic gardening. Farming is seen as a means to deepen Zen practice, which includes an emphasis on creating community through farming-related work:

Since its establishment in 1972, Green Gulch Farm has been on the leading edge of organic farming and land stewardship. We are dedicated to cultivating future stewards of the earth. Our Environmental Education program brings over 900 children from 34 Bay Area schools and organizations to the farm each year. Kids who come might uncover the secrets of compost, make a lettuce burrito, visit a beehive, or see how an apple blossom turns into fruit. Some come from urban underserved schools, and for many it's their first experience of being out in a natural environment. As one Green Gulch tour leader put it, "The children have such a deep hunger to be here. It is a real event in their lives." More and more schools also are requesting that the zendo be included in their visit and are recognizing the power of helping children find the still, quiet place within themselves. (San Francisco Zen Center 2011a)

Kaza writes that "education for environmental awareness is an ongoing effort at Green Gulch Zen Center, spearheaded almost entirely by the garden staff" (Kaza 1997: 232). She lists several ecological programs at Green Gulch, including land stewardship, community relations, ecological culture, and education. Land restoration includes allowing and actively encouraging native flora and fauna to return to acreage that had been altered by previous owners, as well as removal of invasive flora. Despite these impressive efforts, Kaza notes that "environmental concerns are not yet considered a top priority by those in leadership positions" (Kaza 1997: 222).

Spirit Rock Environmental Policy Statement

Based on comparison of publically-available information put forth by all three centers and by Wat Metta, Spirit Rock has a more explicitly stated environmental policy than Green Gulch, YZMC and Wat Metta. Following is ecologically-related policy data presented on the Spirit Rock website as this thesis is being written (Spirit Rock Meditation Center 2011):

Office and Operational Practices

- Buy only recycled copy and printer paper and re-use until both sides are utilized.
- Spirit Rock letterhead is printed with soy based inks on recycled paper.
- All printed publications (newsletters, schedules and general correspondence) are printed on recycled paper with soy-based inks. We use Alonzo Printing for all our outside printing needs, an award-winning company that has been dedicated to best practices for the environment using 100% recycled, tree-free paper and soy-based inks for the last 20 years.
- All cleaning materials are non-toxic, biodegradable and fragrance free.
- We do not provide plastic bags for shoppers in our bookstore.
- Use rechargeable batteries where feasible.
- Use roll, cloth towels in restrooms instead of paper towels.
- Some staff live on-site, eliminating the need to commute to and from work.
- Serve only vegetarian meals.
- Use of CFL bulbs vs. incandescent bulbs wherever possible.

Solar Energy

- Spirit Rock installed solar panels--despite our nonprofit status that prevents us from taking advantage of federal solar energy tax credits.
- Most electric vehicles used onsite are powered by solar energy.

Transportation

- Electric vehicles are used on property.
- Staff members use bicycles to get around property.
- Shopping lists are consolidated to minimize travel into town and lower our carbon footprint.
- Long-running carpool program and ride-share board on website.

Composting

- Spirit Rock has been composting food and animal waste for many years. Food scraps from the kitchen and dining hall are composted daily, largely reducing waste. Combined with water, heat from the sun, manure from our horses and an occasional stir, the 'waste' becomes fertile soil in just a couple months. This rich,

organic mix is then used throughout the property to supplement soil and landscaping.

- Avoid purchasing plastic materials wherever possible and purchase only compostable paper plates and cups when absolutely necessary.
- People attending our events are encouraged to bring their own mugs, water bottles and lunch utensils. Filtered water is provided throughout the campus for refilling bottles.

Plants and Landscaping

- We plant native, drought-resistant plants in our landscape. Spirit Rock does the majority of our planting during the fall and early winter in order to take advantage of the rainy season to help establish these plantings. This conserves water and creates less of a dependence on irrigation systems, which are costly and require disturbance of the soil structure of the land and use excess water.
- Strategic plantings are routinely carried out to preserve streambeds.
- We have planted over 100 trees in the past five years.
- Leave cut oaks (from sudden oak death) to decompose naturally. This feeds soil and emerging plants and trees, and is best practice for stopping advance of the disease.
- Purchase outdoor benches from an eco-friendly bench supplier to ensure our benches are from sustainable forest products.
- Monitor and close trails to control erosion problems.

Reuse and Recycle

- Unclaimed lost and found items are reused when possible rather than thrown away.
- A diligent effort is made to dispose of surplus furniture on Craigslist or eBay.
- Recycle building materials as well as paper, cardboard, glass and cans. Recycle bins are located outside of every building.
- Used computers and monitors delivered to e-waste recyclers.
- We even recycle toilet paper rolls & wrappers.

Air Quality

- Converted wood-fueled Council House fireplace that contributes to local particulate pollution to natural gas for cleaner air.

Green Features of Existing Construction

Meditation Hall:

- Recycled siding used to prevent any old-growth timber from being consumed.
- Passive solar ventilation reduces need for heating and cooling.
- Cupola provides natural light, reducing electricity use.

Residence Halls:

- Large skylights provide natural daylight, greatly reducing hallway lighting.

- Water-saving fixtures such as showers and toilets
- Energy efficient windows
- Maintain one residence hall for individuals with environmental sensitivities.
- No air conditioning used in residence halls.
- Congregate living—co-op baths saves square footage, heating, and all resources used to build new spaces.

Future Plans

- An improved septic system technology
- More on-site staff (24 total) living in congregate housing, sharing meals, etc. and significantly reducing the carbon footprint of each of those people and the resources required to build their less-green housing elsewhere.
- More use of solar energy, with a goal of carbon neutral living.
- Incorporating green practices in all aspects of building design and construction.

(List sourced from Spirit Rock Meditation Center 2011)

Kaza said her purpose in studying Spirit Rock and Green Gulch was to evaluate how well Buddhist centers “walk the talk” when it comes to matching ecological practices at a Buddhist center with Buddhism’s purported environmentalist emphasis.

Yamauchi states that YZMC’s “head administration is particularly concerned with preserving the integrity of the property and is willing to take steps to protect its native beauty. A low environmental impact has always been the approach taken in on-going development of the center. A stewardship approach, however, was, until very recently more one of implication than one of operational policy” (Yamauchi 1997: 249).

As you can see, the literature and ongoing events reveal the challenges and opportunities that Buddhist centers face when they try to match Buddhism’s non-harm principals with the realities of daily living.

Spirit Rock Land Use Conflicts

As this thesis is being written in early 2011, Spirit Rock leaders are engaged in a process with Marin County planning commissioners and other stakeholders regarding “redevelopment” plans for infrastructure and use changes at the Spirit Rock site (Johnson

2011).

According to media reports, Spirit Rock management wants to add 6,000 square feet of new buildings, change the location of buildings or building sites that were approved, and get the county to waive an attendance cap that currently caps daily visitation to 315 people allowed at the facility at any one time. As you might expect, Spirit Rock's plans have run into opposition from some of the local stakeholders, who feel that Spirit Rock has already grown too big and that lifting the cap on daily visitation would create traffic congestion and other problems.

The following two documents represent the timeliest public news postings related to the development of Spirit Rock, at the time this thesis is being written. The first document is an article from the Marin Independent Journal; the second is a citizen's letter to the same newspaper:

The redevelopment of Spirit Rock Meditation Center remained up in the air Monday as county planning commissioners decided they need more time to reflect on the project.

Although county staffers indicated that moving ahead with a proposal to relocate structures away from creeks and minimize grading would have less impact on the environment than proceeding with development plans approved in 1988, commissioners were uncertain about eliminating a cap on daily peak attendance.

As a capacity crowd of about 150 people looked on — most of whom stood at one point to indicate silent support for Spirit Rock instead of making statements at the podium — the Planning Commission continued discussion of an environmental review and a new master plan to Feb. 28.

"We've done our best to make a green and sensitive master plan," said Jack Kornfield, one of the founders of the 410-acre Woodacre retreat for those who seek Buddhist wisdom. "We as a community are really dedicated to being environmentally responsible."

The center wants to relocate structures approved in 1988 but never built, eliminate temporary buildings and add about 6,000 square feet of new construction. The plan would reduce the number of residential retreat and staff units by 21 to a new

maximum of 177. In all, the complex would include 142 retreat units, and another 35 for teachers and staff. Some 88 are already built.

At the same time, the center wants the county to drop an attendance cap of 315 people allowed at the facility at any one time. That cap, although never enforced, limits the facility to 150 overnight visitors, 40 overnight staffers and 125 day and evening visitors.

Instead, the center proposes to develop a "resource protection plan" to manage attendance, coupling it with county regulations on special events, but details remain in limbo. Officials noted an environmental review indicated that even if 791 people were brought in to simultaneously jam every unit, meeting room, meditation and dining hall structure to capacity, there would be no significant impact.

"The project sponsor is not proposing to have any set limit on the number of daily occupants on the site and is proposing an unrestricted schedule of religious activities and events with an unrestricted number of attendees," according to county Principal Planner Jeremy Tejirian.

Although most in the crowd, including representatives of the San Geronimo Valley Stewards, several adjacent ranchers, Marin Agricultural Land Trust and the Marin Interfaith Council expressed support for the program, several commissioners worried about easing attendance limits by relying instead on resource management and special event regulations.

Opposition to the plan was sounded by speakers from the San Geronimo Valley Planning Group, including its chairwoman, Jean Berensmeier. Twenty years ago, valley residents decided "a small Buddhist retreat" would have less impact on the community than building 20 homes on the land, she said. Instead, the attendance limit has been broken repeatedly, "significant grading" has occurred and temporary buildings allowed to remain, she said.

The new plan, she added, "violates everything we agreed to. Spirit Rock Meditation Center did not keep their promise."

Developer Rob Hart, who is shepherding the project, noted the new plan curbs disruption by minimizing grading of undisturbed land, shifting buildings away from creeks and forested areas closer to existing access roads. A meeting hall accommodating 450 people would be moved out of creek and forest habitat and away from a slide zone. A dining hall seating 195 would be relocated downhill.

Cutting back the number of retreat units — coupled with the very nature of what Spirit Rock is about — would serve to cap attendance, Hart said.

Commissioner Wade Holland said he had "no problem" with the new plan but wondered how the panel could rely on as yet undeveloped plans to manage resources and special events to curb attendance. Commissioner Don Dickenson indicated that eliminating the attendance cap looms as a key issue.

Planning staff urged approval of a finding the new plan would have an insignificant negative impact on the environment, and that the program be approved.

"In almost all respects, the development of the Spirit Rock campus proposed in the master plan amendment is far superior ... from an environmental perspective" to the development that otherwise would occur, Tejirian said. (Johnson 2011)

Here is an example of reaction to Spirit Rock's expansion plans from a local stakeholder:

The Spirit Rock Meditation Center near Woodacre is asking the county to approve their request to increase the number of daily attendees from the current 315 people 198 days per year to an unlimited number of people all year round.

The center says its current attendance cap is "burdensome" to its operations. All residents of West Marin who commute on Sir Francis Drake Boulevard should be concerned about this.

The documents supplied by Spirit Rock predict that this project will result in a 968-percent increase in traffic with as many as 1,143 cars on the site in one day.

When this project was approved in 1988, it was predicted that there would be no more than 50 to 80 cars a day.

Residents of the San Geronimo Valley, Bolinas, Point Reyes and Inverness will have to adjust to the reality that soon their commute will be hampered not only by increased traffic out of Spirit Rock, but also by having to frequently stop at a Woodacre intersection that might require a traffic light.

When the first traffic light goes up in the San Geronimo Valley, you can bet that this is going to be the beginning of the end for our rural character in West Marin.

Ninety-three percent of the people who attend classes and events at Spirit Rock come from over the hill.

Spirit Rock should be a good neighbor and use its facility only for retreats, as it was originally planned. All events and classes should be held at a satellite center closer to the freeway.

This will reduce traffic, air pollution and the carbon footprint and it is sustainable. Isn't this what Buddhism is all about? (Morey 2011)

What flora, fauna and ecological values exist at the sites profiled in the Kaza and Yamauchi chapters? Kaza says Green Gulch is located in a “beautiful coastal valley in the narrow flood plain of Green Gulch Creek, just north of San Francisco” (Kaza 1997: 220). Green Gulch is partially bordered by public lands protected by federal reserves, a state park and Marin County Water District. Spirit Rock is in the San Geronimo Valley in between San Rafael and Point Reyes National Seashore. The valley is relatively rural and undeveloped, Kaza says, thanks in part to an advocacy organization called San Geronimo Valley Planning Group (SGVPG) (Kaza 1997: 220-224). Indeed, SGVPG and Spirit Rock leadership have been in ongoing discussions since at least 1987, as indicated by the February 2011 SGVPG newsletter:

...The 1988 [Spirit Rock] Master Plan was approved to establish a development area envelope and provided a framework governing the uses, the intensity of uses and the development of the site.” In 1987, Insight Meditation West (now Spirit Rock) sought support of the Planning Group. The Planning Group reviewed the plans and felt that a small Buddhist retreat with a staff of 20 (including teachers) along with 20 monks and nuns in residence in huts in the Hermitage area, a Monday night class and a limited number of retreats would have less impact than the 20 homes the area was zoned for and gave their support. A negative dec was approved because the limited usage had little impact on the environment. They subsequently installed some temporary buildings.

The Planning Group Steering Committee recently met with a representative of Spirit Rock Center and the applicant HartMarin to better understand their proposal.

It appears that they expanded their use considerably beyond what was agreed to in 1988 and in 1995 got their plans approved. Apparently, no EIR was required. The 1995 plans were never implemented and they received several extensions on the use of their temporary buildings. They now want to “relocate approved buildings away from environmentally sensitive areas . . . while providing for development of a limited number of new facilities” and “control land use and attendance by proposing to replace existing population limits with a Resource Protection Plan to address population related issues through property management practices”. It appears that they would increase the square footage of some buildings and more than double their intensity of daily use. This is extremely complicated. We are currently researching how and why the current proposal is not in keeping with the original proposal the Planning Group supported and if we are correct in understanding the current proposal. We need to further study the current intensity of use and the proposed intensity of use before commenting on the projects merits and the adequacy of a mitigated negative declaration of environmental impact. (San Geronimo Valley Planning Group 2011)

Kaza reports that Green Gulch has created infrastructure including temporary trailers, and a dining hall built in 1995. She notes that:

...future design plans include four residence halls for eight-four retreatants, a larger meditation hall to seat two hundred, staff housing for twenty resident staff, additional parking areas, a family program building, four family apartments, teacher housing, a Council House with meeting rooms, and an adjacent hermitage with eighteen private huts, a small meditation hall, and two teacher rooms. In early 1996 the plan received approval from Marin County Department of Public Works and all other necessary official agencies. The next building phase is expected to begin soon. (Kaza 1997: 222-223)

Habitat and Land Ethic at Yokoji Zen Mountain Center (YZMC)

According to Yamauchi, YZMC is comprised of 160 acres of “rich habitat” at the head of Apple Canyon in the southwestern slopes of the San Jacinto Mountains of Southern California, at an elevation of 5,440 to 6,800 feet. The acreage:

...contains a mosaic of habitats: riparian, rock outcrops, meadows, montane chaparral, oak woodlands and mixed conifer forests. In addition, much of the property...is relatively undisturbed...a substantial portion of the adjacent land is federally designated wilderness...A detailed biological impact report...lists as

present in the area 216 species of plants, 62 species of birds, 24 species of mammals, and 16 species of reptiles and amphibians. (Yamauchi 1997: 251)

These species include several rare animals and two rare plants.

In contrast to the apparent controversies regarding Spirit Rock's land management practices and proposed expansion of visitation, I could find no published reports of similar issues arising at YZMC. Part of the reason for this may be that there has been, according to Yamauchi, "minimal development of the property" (Yamauchi 1997: 255). Facilities and facilities expansion, as of the date that Yamauchi wrote his chapter, had only taken up three of the site's 160 acres. "The restricted location of human use has thus significantly lessened the impact on Apple Canyon and directly contributed to the continued vigor and health of the local environment," Yamauchi writes (Yamauchi 1997: 244-245).

YZMC's land ethic has characteristics you might expect from a Buddhist retreat center as regards the way its human inhabitants conduct their lifestyles. Yamauchi mentions a YZMC biological impact study conducted by Michael Hamilton and Associates and published in 1994:

"Disturbances apparently are minimal because of low noise levels, limited lighting, no hunting or trapping, lifestyle characteristics which favor biological diversity, and limited human visitations...As a result, the biological diversity of the property is unusually rich" (Yamauchi 1997: 256).

The overall ambience of these facilities is in keeping with the idea of having a retreat where Buddhist practice takes place. Kaza notes that visitors to Spirit Rock and Green Gulch "frequently express their appreciation for the beauty of the rural country settings at these retreat centers...The landscape itself is spiritually inspiring and is seen as

part of the meditative experience” (Kaza 1997: 223). Yamauchi says the YZMC site is treated as a “sacred place,” and that this sacralizing contributes to minimizing environmental disturbances.

The task of [the Green Gulch] community is to offer room for all beings to grow and flourish within the limits of the landscape.

Given the volume of traffic through Green Gulch, this is no easy task. Retreat centers often suffer from overuse of the land and the staff, and from projections of need for human community. Green Gulch serves thousands of people over the course of a year. A residential staff of 25-30 assisted by 10-20 guest students serves class and conference groups of 25-50 people each day, plus Sunday crowds of 200-300 visitors. Without some clear structure for human traffic flow and behavior, the capacity to offer spiritual and psychological nourishment would quickly erode. Over time, it is the structure which shapes the community and the practice of being together. (Kaza 1991: 32)

Green Gulch has made great strides over the last two years in its efforts to recycle everything from incense ash to batteries. The 1991 winter practice period focused on tree planting for its daily work, including public work days every Saturday. Meals have always been vegetarian, thus reducing the impact on animals as well as the consumption of grain, water, and energy that support meat production. In the last year, the officers have undertaken the task of "eco-monitoring" Green Gulch, Tassajara, and the San Francisco City Center for environmentally effective and ineffective practices. Two of the appointed Board members this year represent ecological interests and concerns.

Still, there are many areas open to improvement. Though many of the practices I've described here are now seen as traditional (in the short space of 10-15 years), not everyone who spends time at Green Gulch becomes environmentally enlightened. We do not always make sure people see the landscape outside the zendo. I would, for example, be tempted to require a ridgetop hike and introduction to the water system for all incoming guest students. But the practices are evolving, and they are guided by the traditional monastic model of restraint, simplicity, and moderation. I have watched the greening of the residential abbott and the stable presence of the farm and garden staff. People keep coming in large numbers to learn from the land and the teachings and to participate, at least for a time, in this elusive event called community. They come to taste, as Gary Snyder puts it, "a life that is vowed to simplicity, appropriate boldness, good humor,

gratitude, unstinting work and play, and lots of walking to bring us close to the actually existing world and its wholeness." (Kaza 1991: 32)

“Reinhabitation” of Land: Creating Ecosystem-Conscious Cultures

The framework for Kaza’s study of Green Gulch and Spirit Rock is based on the work of Gary Snyder and Ray Dasmann. As Kaza explains it, Snyder created a three-part ecological model based on Dasmann’s contention that human society can be categorized into three groups. One group is comprised of “ecosystem cultures” whose “life and economics are centered in terms of natural regions and watershed.” Another group is biosphere cultures “that are directed from urban centers and oriented to global use and plunder of natural resources.” The third group is “reinhabitory peoples” who seek to live in a particular bio-region the same way that the “original inhibitory peoples” lived (Kaza 1997: 226).

According to Kaza, Snyder envisions three ecological goals for reinhabitory peoples: feeling gratitude for the land; taking responsibility for how you affect the land; being open to the “energy” of the land (Kaza 1997: 226). Of these, the third goal is somewhat vaguely defined, and seems to be more of a spiritual practice than a measurable land use practice.

Putting aside Snyder’s framework, Kaza (1997) well delineates the “points of tension” between the way life is conducted at Green Gulch and Spirit Rock and the ideals of reinhabitation, “ecological sustainability,” and self-reliance. She points out that the top priorities of these two centers are to transmit Buddhist teachings and provide a supportive place to practice Buddhism. If these centers were to make ecological preservation as their top priority, there would have to be radical changes in how the centers source food, energy, material supplies and economic stability.

There would also be debates about a variety of related issues, some of which we see unfolding in early 2011 as Spirit Rock seeks to develop land, build more infrastructure, and increase visitation. Challenges include land use decision-making, scarce water resources, water consumption, generation of sewage and other waste, recycling, sourcing of food and other support materials, invasive species control, energy consumption and generation, fire danger and fire codes, noise pollution, light pollution and interactions between humans and native flora and fauna (Kaza 1997: 241-243).

In Yamauchi's YZMC study, similar tensions are noted. He encourages YZMC managers to leave the majority of land undeveloped and undisturbed, in part to protect threatened or endangered native species such as the California spotted owl. Yamauchi worries that a "potential increase in the number of residents, students and guests will also have a significant impact and must be considered when devising appropriate measures to limit adverse growth" (Yamauchi 1997: 258).

Not only does Yamauchi recognize points of tension, he also recommends solutions. After explaining that YZMC's existing photovoltaic grid and six kilowatt propane generator provides the center's electricity, he recommends increasing the number of photovoltaic panels with the goal of freeing the center from having to use the propane electricity generator. He also suggests that YZMC expand on an existing apple orchard and vegetable garden to organically grow a larger portion of the center's food (Yamauchi 1997: 260-261).

In conclusion, the worthy evaluations of how Green Gulch, Spirit Rock and YZMC ecological policies interact with flora, fauna, land use plans, stakeholders and Buddhist practice are useful guideposts for my own research. In my view, the most

important aspect of both these chapters is contained in one sentence (framed as a rhetorical question) in Kaza's essay:

“Can reinhabitation take place if residents are primarily dependent on goods produced away from the land?” Kaza asks (Kaza 1997: 239). This echoes what human ecologist Bennett says about communities that appear to be somewhat equilibrrious, but when you look more closely, the degree to which a community such as a Buddhist center is equilibrrious is often dependent on the degree to which disequilibrrious society provides essential materials and infrastructure support.

Research Questions

In light of the literature I have discussed and my goal of finding methods that lead away from disequilibrrious society and create societies that foster topophilia, biophilia and a healthy biosphere, the research questions for this thesis are:

- How does a socioculturally-embedded non-harm (ahimsa) paradigm affect people's choices regarding anthropogenic activities?
- How and in what ways can the Thai Forest Tradition as implemented at Wat Metta be an alternative paradigm and guidepost that leads away from disequilibrrious society?
- How do perceptions, sense of place and environmental ethics of Wat Metta monastery visitors and monks intersect with the monastery's impacts on the environment?

METHODOLOGY

This thesis focuses on the concept of equilibrious versus disequilibrious society. It seems beyond debate that modern techno-industrial society is increasingly disequilibrious. We have also seen how modern society often creates built environments, social systems and unintended consequences that interfere with our ability to experience toponophilia and biophilia. Further, many scientists warn that an anthropogenic mass extinction event that threatens the very foundations of biodiversity.

When I examined the mainstream strategies that purport to deal with such problems, it appeared they were not going to significantly reduce the disequilibrious aspects of techno-industrial society. Recycling, hybrid cars, solar power, organic gardening and similar tactics are better than nothing, but are unable to create a timely, measurable and significant reduction in pollution, loss of biodiversity and the landscapes of fear inherent to an increasingly urbanized, poorly-planned, energy-hungry infrastructure.

According to Sponsel and Natadecha-Sponsel, monastic communities have the “potential to serve as working models of a green society and...some actually do so” (Sponsel and Natadecha-Sponsel 1997: 48). At Wat Metta monastery in Southern California, Thai Forest teachings influence the daily lifestyle of residents and visitors. Buddhist practice is described as “timeless” – meaning that one should be practicing and cultivating skillful qualities throughout the day, and not dividing up one’s time into categories such as “meditation time,” “meal time,” or “socializing time” (Thanissaro Bhikkhu 2010). My residency at the monastery gave me the opportunity to observe the totality of the monastery’s daily schedules and rituals.

The multi-faceted nature of my research questions required I develop a mixed-methods approach as my research methodology. The three methods utilized were semi-structured interviews with monks and laypeople, a physical land survey, and participant observation. An in-person visit was necessary for me to implement my methodology; first-time visitors to Wat Metta are allowed to stay for a period of up to two weeks. I was a first-time visitor to the monastery; my research spanned a period of 11 days from May 24, 2010 to June 4, 2010.

Site Selection

After I became interested in Buddhism as a potentially “green” spiritual tradition, I familiarized myself with Buddhist teachings by reading books and articles on Buddhism. I also listened to many hours of online dharma talks given by teachers from several Buddhist traditions. Most of the talks were provided by Mahayana organizations in the Zen tradition; there are many Zen monasteries and organizations in America (Seager 1999).

I learned that American Zen is often linked to environmentalism and social justice. Recall the explicitly stated environmental protection goals of the Zen organizations cited in previous literature. I contacted Zen centers to ask their permission for my research, and what I found out made me wonder if their publicly stated commitment to environmentalism was shallow ecology rather than deep ecology. For example, one prominent Zen teacher spent a lot of time talking about a million-dollar donation from a wealthy supporter. Some of the other money donated to this Zen organization was used to purchase an ultra-expensive hardwood floor for a meditation hall. A person who had visited the monastery later told me that staff were so concerned

about the hardwood floor that they “harassed” meditators to ensure that nobody put so much as a scuff on the shiny new floor.

Dharma talks given by Theravada teachers (especially teachers in the Thai Forest Tradition) evidenced a less capitalist approach to running Buddhist monasteries and centers. Their teachings came across as far more serious, with an emphasis on following the “original” Pali Canon Buddhist teachings. I never got the feeling that a Thai Forest abbot would invest donations in fancy hardwood floors. Additionally, Thai Forest teachers emphasized the spiritual and practical value of wilderness. They made a big deal of the Buddhist lore that says Buddha found enlightenment under a tree, and then conducted most of his teaching in the rural countryside. I chose a monastery in America because I wanted a study site in a society that could be said to be a role model for disequilibrium systems. Americans are among the most consumptive people in the world (Worldwatch Institute 2011); I found it ironic to study what I imagined to be an island of deep ecology amidst the larger ocean of consumerist America.

Another benefit of studying a Buddhist organization in America was a shared language base from which to communicate with the organization’s leadership and some of its visitors. I attempted to contact Buddhist monasteries in Thailand and other non-English speaking countries, and was advised that the language barriers, as well as cultural barriers (such as patriarchal attitudes towards women) would hamper my research.

I also contacted other North American and British Buddhist monasteries, including Abhayagiri Buddhist Monastery in Redwood Valley, California, Cittaviveka (Chithurst Buddhist Monastery) in Hampshire, England, and Amaravati Buddhist

Monastery in Hemel Hempstead, England. However, I never received a response from any of them.

These are some of the reasons I chose the Thai Forest Tradition and Metta Forest Monastery, also known as Wat Mettavanaram (Wat Metta), located in Valley Center, California. Wat Metta is located in a relatively secluded and “forested” area of Southern California. The site could be described as an avocado grove surrounded by native chaparral landscape. Valley Center is a small agricultural town in northern San Diego County, set far enough away from major cities like San Diego and Escondido to maintain a semi-rural character.

Wat Metta’s residents and overnight visitors are predominantly English-speaking, although the monastery is also visited by Asians who live in California. Unlike other North American monasteries and Buddhist centers (Lama Choyin Rangdrol 2006), Wat Metta is a crossroads of residents and visitors from varying ethnicities and cultures.

Data Collection

Interviews

Semi-structured interviews were my primary method of obtaining data regarding monastery infrastructure, lifeways and policies, as well as individual’s beliefs. A semi-structured interview is usually based on either a set of prepared open-ended questions or an “interview guide,” which is an informal “grouping of topics and questions that the interviewer can ask in different ways for different participants” (Lindlof and Taylor 2002: 195). The flexibility of semi-structured interviews allows the interviewer to tailor questions to a particular situation or interviewee, and to ask follow-up questions.

I used a combination of prepared questions and an interview guide. My list of questions was based on a categorized interview guide (topics included ideas regarding wilderness, specific monastery practices, and treatment and perception of land, flora and fauna), but did not ask each interviewee the same questions because questions were targeted to be appropriate for various interviewees. For example, I felt it appropriate to reserve questions about integral Buddhist teachings and practice for Wat Metta's abbot, who has extensive training from Thai Forest lineage masters. I developed new questions as I became familiar with the different roles of laypeople and monks in daily monastery operations; when I learned that specific lay individuals and monks were in charge of certain tasks, such as food preparation, grounds maintenance, and financial issues, I tailored new questions that explored their duties.

Regardless of a person's designated status at the monastery, each participant was interviewed privately, and interviews were conducted at the convenience of the participant. There was one exception: Wat Metta monks are prohibited from being alone with females; my monk interviews were conducted in a "public area" with at least one other monk nearby who had visual access to the interview.

I conducted recorded and unrecorded interviews. My formal interview participants were the abbot (head monk and dharma teacher), a senior monk, and three laypeople. The lay participants included a frequent long-term visitor ("long-term" meaning residing at the monastery for several months at a time), a lay nun resident, and an individual in candidacy to become a monk (termed "*nāga*" in the Thai Forest Tradition).

My selection criteria for choosing interview topics included finding individuals who possessed considerable knowledge of Thai Forest doctrine as taught at Wat Metta who were also familiar with monastery logistics. The abbot was an obvious choice because of his leadership, teaching and decision-making roles. A person deemed the “senior monk” was the most knowledgeable about specific land practices because he held a leadership role in landscape maintenance and assigning landscaping chores such as tending trees and weeding, both of which are tasks monks are not allowed to do.

I chose to interview the three lay participants because they were very knowledgeable about the inner workings of the monastery, especially as it concerned lay life (including activities like the morning meal preparation, chores, and interfacing with non-monastic society). I also chose to interview the nāga because of his liminal status at the monastery – he was not a typical layperson, nor was he an ordained monk. His transitional stage provided a different viewpoint than that of the monks and regular laity.

The other two lay participants were chosen because of their involvement in running lay operations at the monastery. The lay nun assigns tent space to visitors, cooks several main dishes for the daily meal, and assists in purchasing groceries. She was ordained in Thailand at an extremely remote forest monastery (Dtao Dum Forest Monastery), and had been residing at Wat Metta for several years prior to my visit.

I interviewed a “long-term visitor” who was raised in the Thai Forest Tradition and had visited Wat Metta on a yearly basis for approximately seven years. Each year she stayed for successively longer periods of time; at the time of my visit, she was planning to stay at least seven months. As with the lay nun, the long-term visitor prepared several

food dishes each day for the daily meal – usually vegetarian dishes. She was familiar with edible wild plants on monastery property.

I recorded the interviews on an Olympus LS-11 PCM (pulse-code modulation) digital recording device (Figure 3) with a cardioid stereo lapel microphone (Figure 4).

Upon returning from the monastery, I transcribed the interviews onto my computer.



Figure 3. Olympus LS-11 PCM recorder (*Image source: Russell 2009*).



Figure 4. Cardioid stereo lapel microphone, unassembled (*Image source: Sound Professionals 2011*).

To retain the privacy of all participants, real names were omitted during interviews. In this thesis, I will refer to participants as the “abbot,” “senior monk,” “long-term visitor,” “lay nun,” and “nāga.” All other individuals mentioned will remain totally anonymous.

Physical Geography and Geographic Information Systems (GIS)

To assess the site's biodiversity and ecosystem integrity, I inventoried different plant and animal species within Wat Metta's property. I first surveyed the monastery's primary land parcel (which contains the monastery's buildings and groves), then surveyed a representative portion of monastery land adjacent to the main parcel. I photographed flora and fauna and compared my sightings with flora and fauna reference guides (San Diego Natural History Museum 2007, 2010).

I tracked my explorations of monastery property with a handheld GPS unit (Garmin Oregon 400t) to record precise locations of different plant species, and to ensure I was on Wat Metta property. The boundaries of adjacent parcels were not visibly defined by fences, surveyor's marks or signage; it was sometimes difficult to know whose land I was on. All physical observations were made between the hours of 11:00 am and 4:30 pm.

I utilized geologic data compiled by the U.S. Geological Survey for the Pala 7.5-minute quadrangle (U.S. Geological Survey 1997) and property ownership and soil data from SanGIS, a "joint powers agency" operated by the City and County of San Diego (SanGIS 2007). I obtained coordinates for the monastery through Google Earth prior to my field research. All aerial imagery used was acquired from the ArcGIS online server as well as Bing Maps for ArcGIS. A digital elevation model (DEM) was obtained using the USGS Seamless Server (U.S. Geological Survey 2010). I created shapefiles of Wat Metta property based on land ownership data from SanGIS, and layered the aforementioned variables to produce maps as a way to gain a broader view of the Wat Metta area.

Participant observation

Participant observation is a social science research methodology that involves “being in the presence of others on an ongoing basis and having some status for them as someone who is part of their lives” (Lindlof and Taylor 2002: 134). In the process of getting involved “in the life of a scene,” the researcher attempts to temporarily join the community as a contributing member (Lindlof and Taylor 2002). Researchers who utilize participant observation describe interactions they have with community members. They also describe actions that are exclusively the domain of community members during which the researcher is an observer rather than a participant. A sizable percentage of my data was acquired from this methodology.

Verbal communication is a primary component of participant observation (Lindlof and Taylor 2002). However, conversations a researcher has when being an observant participant are different from the conversations during interviews. Participant observation talk is “embedded in the accomplishment of episodes other than interviews” (Lindlof and Taylor 2002: 135). This type of talk was an integral part of my research methodology, particularly as a way to acquire anecdotes and other relevant stories, as well as information that clarified or expanded data I gathered during other interviews.

Participating as a lay member of the Wat Metta community included following the rules and daily schedule of the monastery, and living on-site like any other visitor. Upon my arrival I was assigned a meditation platform and “walking meditation path” in the “women’s orchard,” which was the portion of the orchard closest to the guesthouse. The tent I brought with me (a relatively small two-person tent) was my home for two weeks. I followed the example of my orchard-mates and pitched the tent on my assigned

meditation platform (Figure 5). The walking meditation path (Figure 6) was constantly littered with avocado tree leaves, and I was taught how to efficiently sweep the leaves aside with a large handmade broom (Figures 7 and 8). Indeed, by the end of my stay I had gained proficiency in “sweeping meditation.”



Figure 5. Tent on a meditation platform in the women's orchard.



Figure 6. Walking meditation path (swept).



Figure 7. Broom used to sweep paths and roads.



Figure 8. Broom head.

In addition to living in the orchard, I participated in the daily activities of the monastery. This included group meditation sessions, meal preparation, giving alms to the monks, and work periods (Table 4). Visitors are allotted several “free” hours each day for meditation and rest, and I used those hours to survey the property, conduct interviews, and drive into town when my research equipment broke (which happened just once).

| Schedule (approximate) | Activity |
|------------------------|---|
| 5:30 am – 6:45 am | Morning chanting/group meditation |
| 6:45 am – 8:30 am | Morning work period – meal preparation, sweeping of grounds by guesthouse |
| 8:30 am – 9:15 am | Alms round – meal offering to the monks |
| 9:15 am – 11:00 am | Meal time for laypeople; clean-up |
| 11:00 am – 5:00 pm | Free time |
| 5:00 pm | Question and answer (Q&A) session with the abbot |

| | |
|---------------------------------|--|
| End of Q&A – 6:30 pm | Afternoon work period |
| 6:30 pm – 8:00 pm | Free time |
| 8:00 pm – 9:30 pm | Evening chanting/group meditation and dhamma talk given by abbot |

Table 4. Daily schedule for laypeople at Wat Metta.

As a member of the Wat Metta community, I had to adhere to the “eight precepts” of Theravada Buddhism. The five precepts as I explained them in the literature review prohibit individuals from killing, stealing, having illicit sexual relations, lying, and using intoxicating substances. The eight precepts are an extension of the five precepts; they also narrow the third precept (abstaining from having illicit sexual relations) to prohibiting *any* sexual activity. The additional three precepts are:

9. abstaining from eating after noon;
10. abstaining from dancing, singing, music, unseemly shows, using garlands, perfumes, unguents, and things which tend to beautify and adorn the person; and
11. abstaining from using high and luxurious seats and beds (Wijayaratna 1990: 181).

My thesis methodologies – semi-structured interviews, physical surveys, and participant observation – allowed me to acquire a cohesive set of data, which you will see in the following chapter.

RESULTS

In this chapter, interviewees will be addressed as the following:

| Title | Description |
|--------------------|---|
| Abbot of Wat Metta | Head monk and dharma teacher; leader of Wat Metta community |
| Senior monk | Responsible for assigning chores; knowledgeable about land-use practices and maintenance |
| Nāga | In candidacy to become a monk. Liminal (transitional) social status at Wat Metta. |
| Lay nun | Not a “formal nun, but was ordained in a remote forest monastery in Thailand; has resided at Wat Metta for several years. |
| Long-term visitor | Ethnic Thai heritage; raised in the Thai Forest Tradition. Has been a frequent to Wat Metta for seven years. |

Table 5. Listing of formally interviewed participants and their respective background information.

Other people I reference remain completely anonymous, and will be referred to as “laypeople,” “visitors,” or “residents.” These individuals were not formally interviewed or audio recorded.

Overview of Wat Metta Georegional Area



Figure 9. Panoramic view of Wat Metta and the surrounding area. Photo taken on a hill north of the monastery.

Wat Metta is a non-profit 501(c) Thai Forest Buddhist monastery situated in hill country within the city limits of Valley Center, California, a bucolic agricultural town in northern San Diego County (Figure 10). Valley Center is approximately 40 miles north-northeast of San Diego, 115 miles southeast of Los Angeles, and 100 miles southwest of

Palm Springs. Valley Center is a “small town” with a population of 7,323 as of the year 2000 U.S. Census. The closest city is San Marcos (population of 83,781 as of the year 2010 U.S. Census), approximately 20 miles southwest of Wat Metta.



Figure 10. View of Wat Metta from 1435 ft. Photo shows the sangha (monks) area, meditation hall, lay area, and a monk's hut.

Valley Center is comprised primarily of orchards, farmed land, and native chaparral communities. Nearby cultural or natural areas include Wilderness Gardens Preserve, a 732-acre county park and wilderness area (Dice, Crawford, and Said-Abdelwahed 2009) located approximately two miles north of Wat Metta, as well as Pala Indian Reservation, a 12,273-acre reservation, just north of the Wilderness Gardens Preserve (Pala Band of Mission Indians 2006). Valley Center is flanked to the east and north by the Palomar Mountain range, whose highest peak reaches an elevation of 6,142 feet (U.S. National Geodetic Survey 2009).

The climate of this area is similar to a Mediterranean mountainous region. It is humid-temperate, with mild, wet winters (approximately 15-21 inches of rainfall annually) and hot, dry, wildfire-prone summers. Aside from orchards and vineyards, vegetation consists primarily of coastal open woodland and shrubs, as well as coniferous

forests in the higher elevations. The soil is predominantly sandy loam, a nutrient-rich soil type that makes Valley Center an ideal location for agricultural activity.

Though Valley Center is a relatively quiet small town, noise pollution is present, generated by Camp Pendleton, a U.S. Marine Corps base located approximately 17 miles west of Valley Center. In neighboring Fallbrook, there is a community airpark as well as a U.S. Naval Weapons station, both approximately 10 miles west of Wat Metta. These centers all create noise easily heard from the monastery and elsewhere in Valley Center. In addition to noise pollution from nearby, Valley Center receives air pollution from Los Angeles and San Diego. The monastery itself receives noise and air pollution from helicopters that spray pesticides and herbicides over neighboring orchards (Figure 11).



Figure 11. Helicopter spraying over a neighboring parcel of land. Photo taken from the dishwashing station at Wat Metta.

Despite Valley Center's nearby noise and air pollution, Wat Metta's founder – Ajaan Suwat Suvaco – believed the town provided suitable environmental conditions for establishing a Thai Forest Buddhist monastery (Orloff 2004). He originally started a monastery in a suburb of Orange County, California, but found it difficult to maintain the wilderness meditation traditions of a Thai Forest monastery in an urban environment.

Wat Metta was founded in 1990 when an individual donated 60 acres of agricultural land to Ajaan Suwat. This 60-acre parcel consists of groves of various crops – avocados (Bacon and Hass varieties), persimmons, lemons, oranges, kumquats, silver dollar eucalyptus, Australian tea trees, and proteas. All monastery development is located within these 60 acres. This includes all the buildings (the lay guesthouse, bath house, kitchen, meditation hall, meditation platforms and walking paths, monks' huts, tool sheds, a multi-purpose room for monks, and several unoccupied huts), energy infrastructure (solar panels, propane tanks, irrigation systems), and roads.

In 2000, Wat Metta purchased an additional 80 acres of land adjacent to the 60-acre original parcel (Figure 12). The 80-acre parcel is immediately west of the 60-acre parcel, and is off limits to human alteration for "religious reasons." The abbot stated that the monastery's future plans include purchasing adjacent land to the south (Abbot of Wat Metta, personal communication, May 31, 2010).

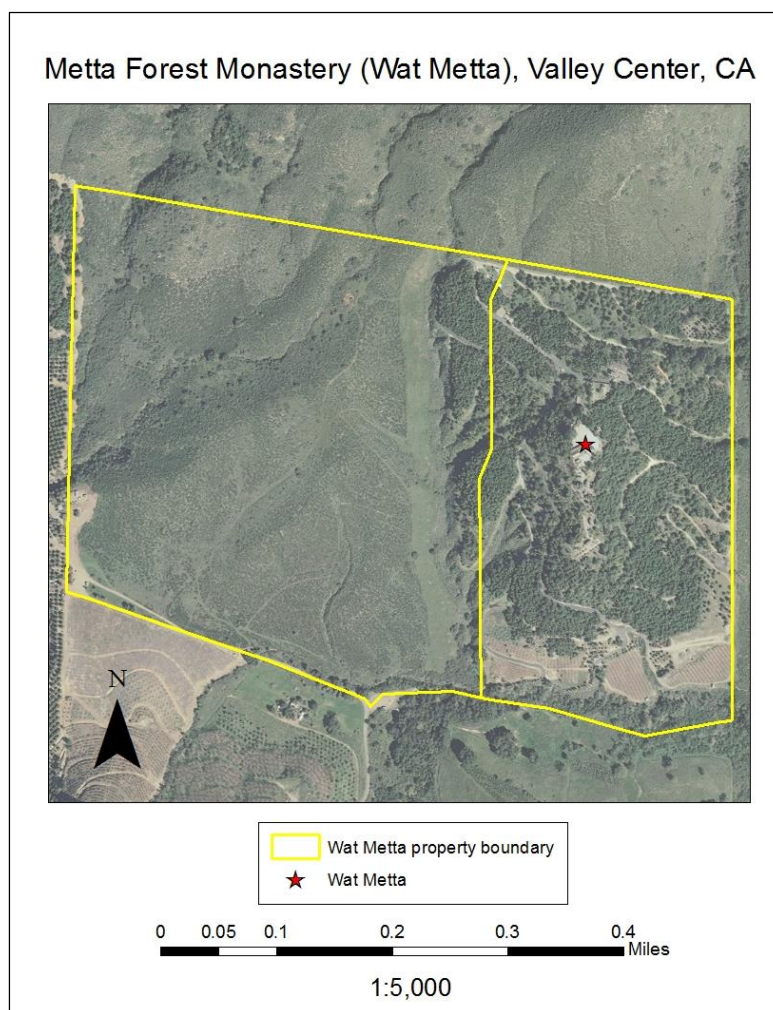


Figure 12. Boundary of Wat Metta property.

Soil within Wat Metta's property is comprised of four types: Cieneba very rocky coarse sandy loam (30-75% slopes), steep gullied land, Ramona sandy loam (2-5% slopes and 5-9% slopes) and Cieneba coarse sandy loam (5-15% slopes, eroded). The Cieneba very rocky coarse sandy loam soil type is by far the most predominant, followed by steep gullied land. Ramona sandy loam and Cieneba coarse sandy loam make up a small percentage of monastery soil.

Average annual precipitation at Wat Metta is 18-21 inches. From May 24, 2010 until June 4, 2010, the daytime high temperatures ranged from 64-83 degrees Fahrenheit;

nighttime lows ranged from 43-59 degrees Fahrenheit. There were no rain events or wildfires; most days were sunny and breezy.

Wat Metta is situated on a hill with an elevation low of approximately 800 feet and a high of 1,100 feet. The geology of the Wat Metta property is influenced by tectonic activity from the Cretaceous period (approximately 145 million years ago to 65 million years ago), during which time the Palomar Mountain range was formed. The predominant geologic formations in this area are comprised of gabbro (mostly biotite-hornblende-hyperstene gabbro), diorite (mostly hornblende diorite), and quartz-bearing diorite (mostly biotite-hornblende quartz-bearing diorite) (Kennedy 2000). A fault runs through the northernmost section of the monastery's 60-acre parcel.

Organizing Template for This Chapter

I created a framework that helps organize my results and guides my research. It is based on the aforementioned human ecology work by Machlis, Force, and Burch Jr. (1997) and Bennett (2009). They created human ecology models that consist of sectorized human ecology activities, impacts, and influences, arranged to demonstrate interrelationships and flow. The emphasis is on analyzing humans using the same approach that ecologists use to analyze the behaviors, interacts and impacts of other animals.

Force is a natural resources professor with a background well-suited to helping create a model of human ecology, as her doctorate is in Industrial and Systems Engineering. She describes her ecosystems model as primarily for natural resource professionals who are tasked with ecosystem management (Machlis, Force, and Burch Jr. 1997). Using her model, managers can ascertain the various factors that influence

resource consumption, with an emphasis on human wants, needs, economics and perceptions.

Bennett is an anthropologist. His human ecology model reflects his anthropological focus on culture, belief, interpersonal transactions, values, and other social science factors while also acknowledging the biological and environmental factors that create the human-nature dynamic.

For my research, I analyzed the Machlis, Force, and Burch Jr. (1997) and Bennett (2009) models in light of the anthropocene geography concept described earlier in this thesis. I consider the Force model to be elegant and comprehensive. My model differs from Force's in that although I would be glad if land use managers used my model, it is not designed *primarily* for land use managers. Instead, it is designed for land use managers and anybody else who wants to measure the causes, conditions and impacts of human choices regarding the anthropocentric reshaping of the planet.

My model shares with Bennett's model an emphasis on humans as earth's dominant animals whose internal life, economics, and culture (rather than genetic, physiological and environmental factors that drive other animal's behavior), are most responsible for how they choose to change the planet. I also share his realization that "human energy-transformation actions...have created the major problems of man on Earth: the growing pressure on nature and on ourselves" (Bennett 2009: 39). Not only that, but I intend my model as a measurement tool that can clearly show whether a society is equilibrrious or disequilibrrious.

The biggest difference between my model and the others is that it reflects the current epoch and Anthropocene Geography. As I explained earlier, we are the most

powerful animal yet discovered in the universe and our ability to transform the earth is increasing and unprecedented. Instead of a world where humans compete with other animal species and suffer the forces of untamed nature, we are increasingly in a world where humans are in control of and are having significant impact on entire ecosystems and biosphere systems. My *Anthropocene Ecosystems Model* (Figure 13) takes into account the pervasive anthropogenic impacts that are almost always present or soon to be present in any situation we are evaluating.

In presenting my research results, I use the Anthropocene Ecosystems Model as a guiding template. I start by noting how monastery residents source food, water and life-sustaining conditions. I look at how they use energy, space and materials to supply physiological needs, but I also emphasize the way physical environment, energy and materials are used to satisfy sociocultural expectations. Further, when I examine impacts, I delve into spiritual ecology, topophilia, biophilia and solastalgia. These concepts are not included in the other two models.

It is useful to note from the outset that my field study had several limitations. One of these is that I needed more time at the monastery to complete physical geography and social geography surveys. I also note that the Thai Forest Tradition has restrictions on where laypeople, especially females, can visit on monastery grounds. For example, the monks' area (or *sangha* area) is off limits to laypeople except for those assigned to a work crew in the area.

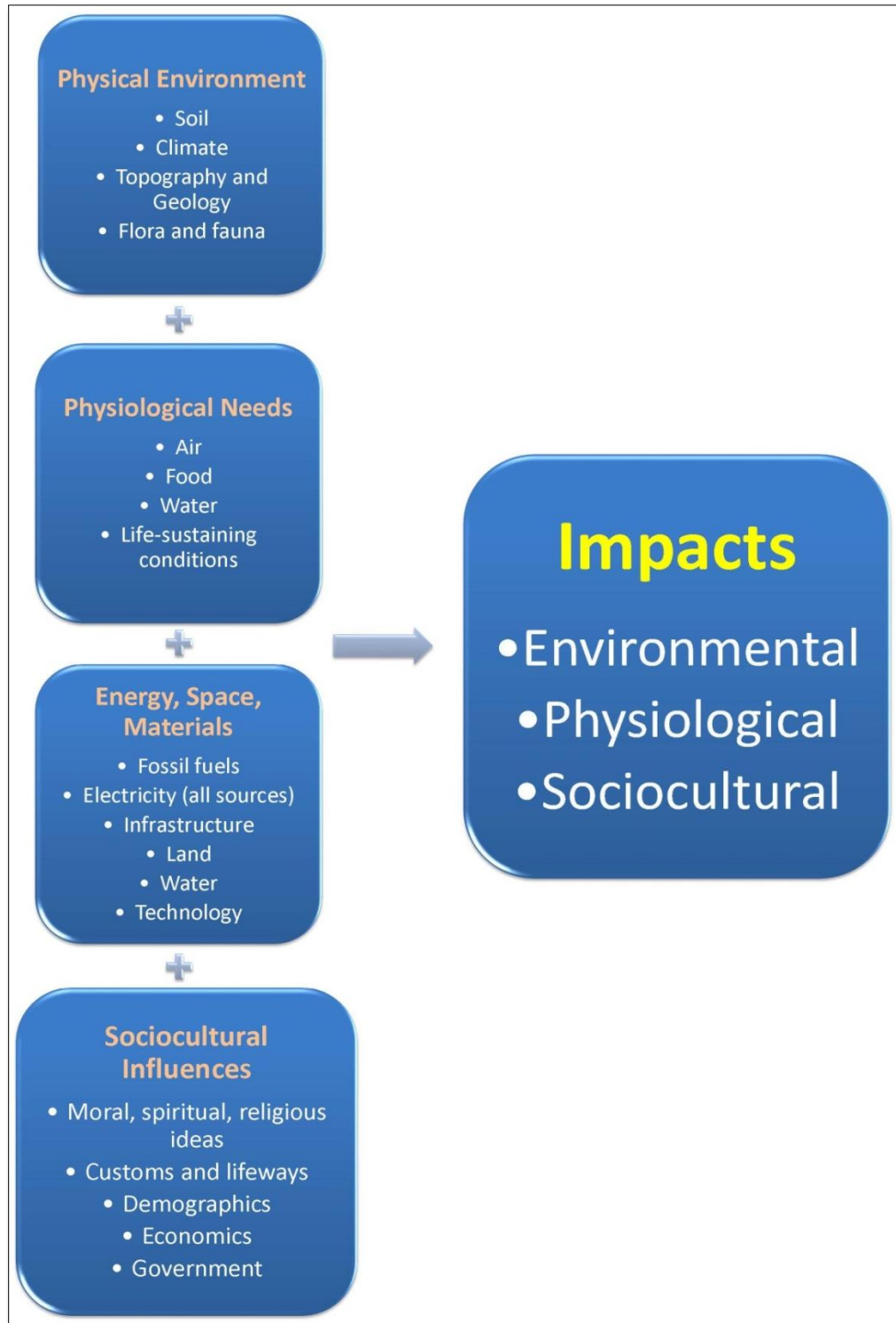


Figure 13. Anthropocene Ecosystems Model.

Results: Physical environment

Vegetation within the monastery's 60-acre property is a mix of agricultural, native, and invasive plants. The grove contains the crops listed above – namely, avocados, persimmons, lemons, oranges, kumquats, proteas, and silver dollar eucalyptus (Figures 14, 15 and 16). Table 6 lists different types of vegetation found throughout the property, their common and scientific names, and whether they are native or invasive to Southern California. Additionally, plants are categorized as edible or inedible; some edible plants are harvested and prepared for the daily meal. This list is not a comprehensive list of all plants found in the area, but it represents what I was able to identify during the time I spent at Wat Metta.



Figure 14. Silver-dollar eucalyptus in the foreground, persimmon grove behind.



Figure 15. Kumquats being harvested in the kumquat grove.



Figure 16. Two different varieties of proteas on Wat Metta property.

| Plant Name | Scientific Name | Native? | Edible? |
|--|--|---------|-----------|
| Aloe | <i>Aloe schoenlandii</i> | No | Yes |
| Australian Tea Tree | <i>Leptospermum laevigatum</i> | No | No |
| Avocado | <i>Persea americana</i> | No | Yes |
| Blueberry | unknown | Yes | Yes |
| Bodhi | <i>Ficus religiosa</i> | No | No |
| Borage (Common Borage) | <i>Borago officinalis</i> | No | Yes |
| Cactus (Engelmann's prickly pear) | <i>Opuntia engelmannii</i> | Yes | Yes |
| Calendula (Field Marigold) | <i>Calendula arvensis</i> | No | Yes |
| California Poppy | <i>Eschscholzia californica</i> | Yes | Medicinal |
| Chickweed (Mouse-Ear Chickweed) | <i>Cerastium glomeratum</i> | No | Yes |
| Cilantro (Coriander, Cilantro) | <i>Coriandrum sativum</i> | No | Yes |
| Cleaver | <i>Galium aparine</i> | Yes | Yes |
| Date palm | <i>Phoenix dactylifera</i> | No | Yes |
| Elderberry | <i>Sambucus mexicana</i> | Yes | Yes |
| Grape (Southern California Wild Grape) | <i>Vitis girdiana</i> | Yes | Yes |
| Impatiens | unknown | Yes | Yes |
| Kale | unknown | No | Yes |
| Kumquat | <i>Fortunella margarita</i> | No | Yes |
| Lantana | <i>Lantana camara</i> | No | No |
| Lavender | <i>Lavandula angustifolia</i> | No | Yes |
| Lemon | unknown | No | Yes |
| Lettuce | unknown | No | Yes |
| Lime | unknown | No | Yes |
| Mallow (Common Mallow) | <i>Malva neglecta</i> | No | Yes |
| Miner's lettuce | <i>Claytonia perfoliata</i> ssp. <i>Perfoliata</i> | Yes | Yes |
| Mint | <i>Mentha piperita</i> | No | Yes |
| Monkey flower | <i>Mimulus aurantiacus</i> var. <i>pubescens</i> | Yes | Yes |
| Mustard (Black Mustard) | <i>Brassica nigra</i> | No | Yes |
| Nasturtium | unknown | No | Yes |
| Oak trees (coast live oak) | <i>Quercus agrifolia</i> | Yes | No |
| Orange | unknown | No | Yes |
| Peach | <i>Prunus persica</i> | No | Yes |
| Persimmon | <i>Diospyros virginiana</i> | No | Yes |
| Plantain (Common Plantain) | <i>Plantago major</i> | No | Yes |

| | | | |
|---------------------------------|-----------------------------------|-----|-----|
| Poison oak (Western Poison Oak) | <i>Toxicodendron diversilobum</i> | Yes | No |
| Prickly lettuce | <i>Lactuca serriola</i> | No | Yes |
| Protea | several species | No | No |
| Purslane (Common Purslane) | <i>Portulaca oleracea</i> | No | Yes |
| Red-Stem Filaree/Storksbill | <i>Erodium cicutarium</i> | No | Yes |
| Rose | several species | No | Yes |
| Rosemary | <i>Rosmarinus officinalis</i> | No | Yes |
| Scarlet bugler | <i>Penstemon centranthifolius</i> | Yes | No |
| Silver dollar eucalyptus | <i>Eucalyptus cinerea</i> | No | No |
| Sorrel | <i>Oxalis corniculata</i> | No | Yes |
| Splendid mariposa lily | <i>Calochortus splendens</i> | Yes | No |
| Thistle (young) | <i>Carduus pycnocephalus</i> | No | Yes |
| trumpet vine | <i>Campsis grandiflora</i> | No | No |
| Yellow dock | <i>Rumex persicarioides</i> | Yes | Yes |
| Yucca (Chaparral Yucca) | <i>Hesperoyucca whipplei</i> | Yes | Yes |

Table 6. Plants observed within Wat Metta's property.

Wat Metta fauna consists primarily of gophers, squirrels, lizards, various bird species, rattlesnakes, gopher snakes, garter snakes, coyotes and at least one bobcat. Coyotes are often seen in the hills surrounding the monastery. From dusk through the late evenings, the howls and barks of coyotes could be heard very clearly from the monastery. Oftentimes, coyotes would roam through the avocado grove at night, possibly to scavenge the many fallen avocados. On a number of occasions, I woke up to footfalls and howls that sounded close enough to be within the next tent space over from my camping spot. Snakes often came through the main lay area of the monastery (i.e. the guesthouse and kitchen areas), though the rattlesnakes I encountered were seen in grasses further down the hill from those areas.

Results: Physiological needs

Food Sourcing and Use

Wat Metta residents utilize food from many sources. Some food is harvested by laypeople from a cultivated garden onsite (Figure 17). Laypeople harvest food from the avocado orchard. The garden size is approximately 300 square feet.



Figure 17. Photo of the garden in front of the lower kitchen and lay area. The garden extends from the avocado tree on the right to the guesthouse on the left.

Thai and Laotian supporters of the monastery who live primarily in San Diego and Los Angeles counties supply large amounts of food every week; they visit every few days to drop off leafy greens, onions, garlic, fruit, vegetables, mushrooms and other produce. Items donated by these same people also include chips, cookies, sesame crackers and home-prepared dishes such as curried chicken, fruit platters, and grilled vegetables.

A permanent resident layperson sources food by purchasing groceries using money donated to the monastery. Each week, she drives to grocery stores in San Marcos with another layperson to buy items such as butter, eggs, yogurt, produce, milk, cheese, condiments and bread. Grains, nuts and dates are ordered from an organic food company.

Money spent on grocery items comes from donated money; the amount spent varies depending on how many guests are residing at the monastery. For example, the average food expense during the second quarter of 2010 (April through June) was \$1,925.30 per month. During these months, fifteen people resided at the monastery – nine monks and six laypeople (Wat Metta accountant, personal communication, July 22, 2010). During the two-week period I spent at the monastery, additional overnight visitors ranged in number from three to 22 people. These people had no effect on the weekly food expenses, and most visitors contributed some form of food donation (Wat Metta accountant, personal communication, July 22, 2010).

According to the long-term visitor, it is a challenge to feed everyone at the monastery:

You have to juggle how much food is enough, how much is too much...you don't have a lot of money to spend. How do you do all this in the span of a morning or part of an afternoon? There [are] definitely things to juggle, but it's an interesting challenge. (Long-term visitor, personal communication, June 1, 2010)

I was told by the nāga that the monastery's accountant was alarmed by an increase in the food cost as compared to some of the other things the monastery spent money on (Nāga, personal communication, June 1, 2010). Subsequently, the kitchen staff scaled back on how much money was spent on purchasing food, though this attempt was

dependent on several factors, including how many visitors the monastery received at a given time.

But it was a good exercise, and it is a good exercise, to make sure that we're not overspending or spending [money] on things that we need to spend it on. And it goes up and down. There was probably one time when we were putting more things in the [excess food] bin than we needed to, so we tried to learn from that and cut back. (Long-term visitor, personal communication, June 1, 2010)

According to the monastery's accountant, the kitchen staff was asked to use what was donated first before buying more supplies (Wat Metta accountant, personal communication, July 22, 2010). However, whether or not the efforts lasted is undetermined:

I noticed that upper kitchen doesn't order as much. We try to use old stuff...I'm not sure if it's a lot [of cutting back]. It still seems there's still a lot [of food] serving out. Maybe the intention to cut a lot was there, but I don't think it lasts. (Lay nun, personal communication, June 1, 2010)

Indeed, there was a lot of food being served during my stay (see Figures 18 and 19), particularly when there was a large visiting population. More often than not, the food cart on which all dishes were placed to bring up to the meditation hall after the alms round was piled on with different items. Dishes were placed precariously on top of other dishes, and some had to be hand carried. When the group got smaller, less food was served.

Please note: Wat Metta monks are not allowed to prepare, explicitly ask for, or harvest their own food. They also cannot accept animal flesh as a donation if they suspect the animal was killed for the purpose of feeding a monk, nor can they eat something that was previously offered (i.e. leftovers).

[illegible]

133

Please note: Wat Metta monks are not allowed to prepare, explicitly ask for, or harvest their own food. They also cannot accept animal flesh as a donation if they suspect the animal was killed for the purpose of feeding a monk, nor can they eat something that was previously offered (i.e. leftovers).

Water Sourcing and Use

Wat Metta sources most of its water from the Valley Center Municipal Water District. The monastery does not harvest rainwater, nor do they have a well to source groundwater. Though there is a stream on Wat Metta property, the monastery does not use its water; monastery management has installed a hydraulic ram pump on the stream, but I was told that they have never used the pump.

Wat Metta's water use is divided between domestic and agricultural. Agricultural use includes only the water used to irrigate the orchards. Domestic use includes water used for drinking, bathing and showering, flushing toilets, washing dishes, doing laundry, watering the garden, cooking food, and cleaning. Water use for purposes other than irrigating the orchard is considered domestic use. Drinking water is filtered tap water provided by a water filtration device. Laypeople do not donate bottled water, nor does the monastery purchase bottled water.

The guesthouse has two bathrooms, each with a shower, sink and toilet. The monastery also has a separate bath house for laypeople; this bath house includes three toilet stalls and a shower on the women's side, and two toilets, one urinal and a shower on the men's side. Each monk's hut includes a bathroom. I was told that all toilets are low-flow.

Dishes are hand-washed in three sinks in a dishwashing area (Figure 20). The amount of water used for dishwashing depended on how many dishes were used that day. The sink water is subsequently drained to adjacent vegetation. Laundry is done by hand. There are several plastic tubs that people can fill with water and detergent (available on-site) to wash their clothes with. The used water is then dumped over the same vegetation that receives the dishwater.



Figure 20. Dishwashing station.

Life-Sustaining Conditions: Buildings/Sanitation/Temperature Management

At Wat Metta, winter temperatures sometimes drop below 30 degrees Fahrenheit. Summer temperatures reach as high as 119 degrees Fahrenheit (Abbot of Wat Metta, personal communication, May 26, 2010). Thus, Wat Metta residents use procedures and infrastructure in an attempt to preserve human physiological safety and adaptive range.

Though most lay residents and visitors sleep in the orchard, typically in a tent, there is the option of staying in the lay guesthouse, which has three unfurnished bedrooms. Every Wat Metta building, including the huts, has its own heating unit for the cold days. The thermostat is usually kept no higher than 67 degrees Fahrenheit for the purposes of conserving energy (Abbot of Wat Metta, personal communication, May 26, 2010).

None of the buildings have air-conditioning. When the buildings were first constructed, they were insulated as much as possible to reduce the costs of heating in the winter and to retain as much cool air as possible in the summer (Abbot of Wat Metta, personal communication, May 31, 2010). During hotter days, Wat Metta residents rely primarily on shade from the avocado trees as a way to maintain a comfortable body temperature.

All sewage from the buildings feed into two septic systems. One septic system is connected to the guesthouse, kitchens, and monks' huts; the other is connected to the bath house. The septic tanks are connected to separate septic fields. One is located by the persimmon grove, and the other in the avocado grove by the monks' huts.

Results: Energy, space and materials

Fossil Fuels

The fossil fuels used at Wat Metta are propane and gasoline. Propane is used more frequently than gasoline – all the heating units are powered by propane, as are the cooking appliances (two kitchen ovens and ranges, a portable range, grill, and an outdoor range), water heaters (excepting the solar water heater for the bath house), and a back-up power generator. Wat Metta has a 500-gallon self-contained propane tank, as well as

many smaller propane tanks (15 pounds of propane each). In 2009, the monastery's financial expenditure on propane totaled \$5,089.

Gasoline is used to fuel gas-powered tools (chainsaws and weed whackers), the monastery's and permanent residents' vehicles, and several small gas-powered generators. All gasoline and propane canisters are stored in the same area on Wat Metta property (Figure 21); several gasoline canisters are also kept in tool sheds around the monastery (Figure 22).



Figure 21. Gasoline and propane containers stored in the lay area.



Figure 22. Gasoline containers in a toolshed.

Fossil fuels are also used in vehicles to transport visitors, residents, food and packages to and from the monastery. The U.S. Postal Service does not deliver to Wat Metta, so a lay resident drives to the post office in Valley Center every day to check the monastery's post office box for mail. Visitors typically drive their own vehicles to Wat Metta, though during my stay one visitor arrived by foot. He hiked to the monastery via the Pacific Crest Trail, a hiking trail that passes through California, Oregon and Washington. Three other out-of-state visitors (including one from Thailand) flew to San Diego International Airport where they took a taxi to the monastery, or arranged to have a monastery representative pick them up. The abbot occasionally travels by plane to Buddhist conferences and centers around the world. Additionally, monks go on

wilderness retreats away from the Valley Center area; these trips require laypeople to transport monks to the wilderness locales.

Electricity

Wat Metta is not connected to the San Diego County power grid and relies completely on solar energy and propane-fueled generators for electricity. The monastery has four large standalone solar panels (Figure 23 and 24) and several others on the roof of the multi-purpose room used only by monks. I was unable to obtain specific values of energy production and consumption, but was told that the amount of energy generated by the solar panels was “barely enough to run two refrigerators” (Senior monk, personal communication, May 31, 2010).



Figure 23. Standalone solar panels



Figure 24. Standalone solar panels.

Only a very small percentage of the battery's capacity (approximately 10-20%) can be used to store and drain energy each day. If the battery is drained below that percentage, it shortens the life of the battery and eventually burns it out. In order to have a large storage capacity, the battery bank has to be substantially large; Wat Metta's battery bank is not large enough. Additionally, the people at Wat Metta have had problems with the panels and inverters. They intend to get new, more efficient panels in the future (Senior monk, personal communication, May 31, 2010).

Energy conservation is highly emphasized (Figure 25). The monastery's original policy regarding electricity use was that they would rely entirely on energy harvested from the panels. Once this electricity ran out, they would simply wait until the panels generated enough power to turn electrical appliances back on (i.e. they would wait until the sun came back out). However, San Diego County requires that all solar-powered places have a back-up generator. Wat Metta's back-up generator is configured so it does not automatically turn on when the electricity generated from the solar panels runs out.

The monks use their discretion when turning on the generator; the senior monk says the generator is used too much (Senior monk, personal communication, May 31, 2010). The back-up generator is used more in the winter because the seasonal decrease in sunlight decreases the amount of solar-generated electricity. Summer use of back-up generator electricity spikes somewhat, due to refrigerators that use more electricity to counter the hot weather.

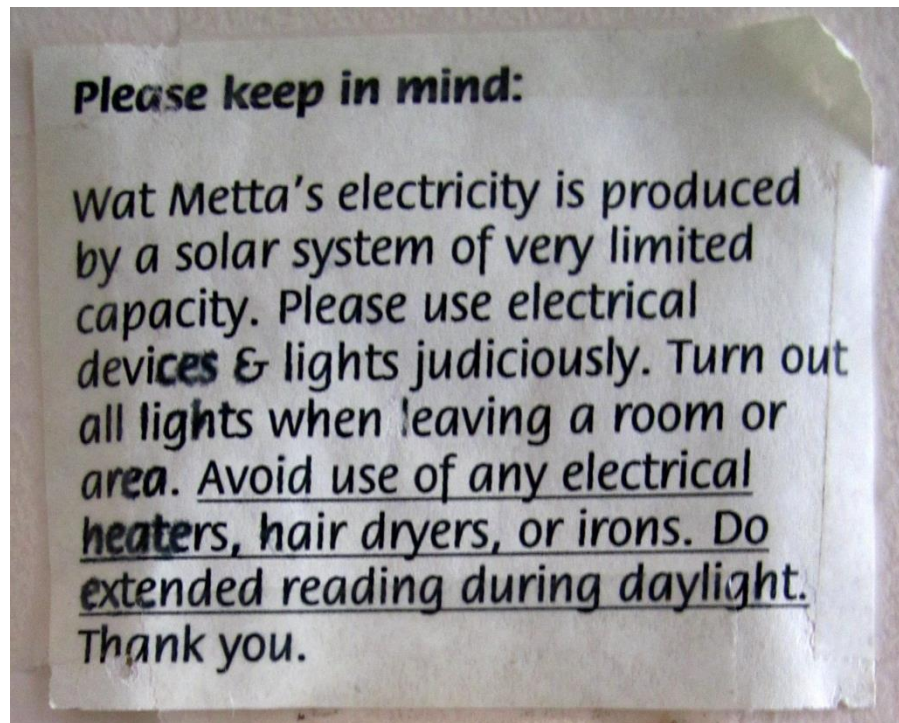


Figure 25. Electricity conservation notice posted above a light switch in the guesthouse bathroom.

Refrigeration is the primary use of electricity at Wat Metta, but electricity is also used for lights; electric-powered tools; kitchen appliances like juicers, blenders, and food processors; the two kitchen ovens and ranges; and a speaker system connected to the meditation hall. Additionally, there are electrical outlets in the guesthouse, outdoor lay area, bath house, and meditation hall. These outlets are used various reasons, including

powering electric tools and kitchen appliances, and charging personal items like laptop computers, cell phones, and batteries.

Land Uses and Sourcing of Infrastructure Materials

When the 60-acre agricultural parcel was donated to Ajaan Suwat, the avocado groves, paved roads and some buildings were already extant. Wat Metta management erected several meditation platforms (which also became places of residence for overnight visitors) and an outdoor group meditation area (Figure 26). Land was cleared to create walking meditation paths near the meditation platforms. There is one paved road leading into and out of the property. It travels up the hill and past the guesthouse, then loops back down the hill to rejoin itself near the entrance to the property (Figure 27).



Figure 26. Outdoor group meditation area.

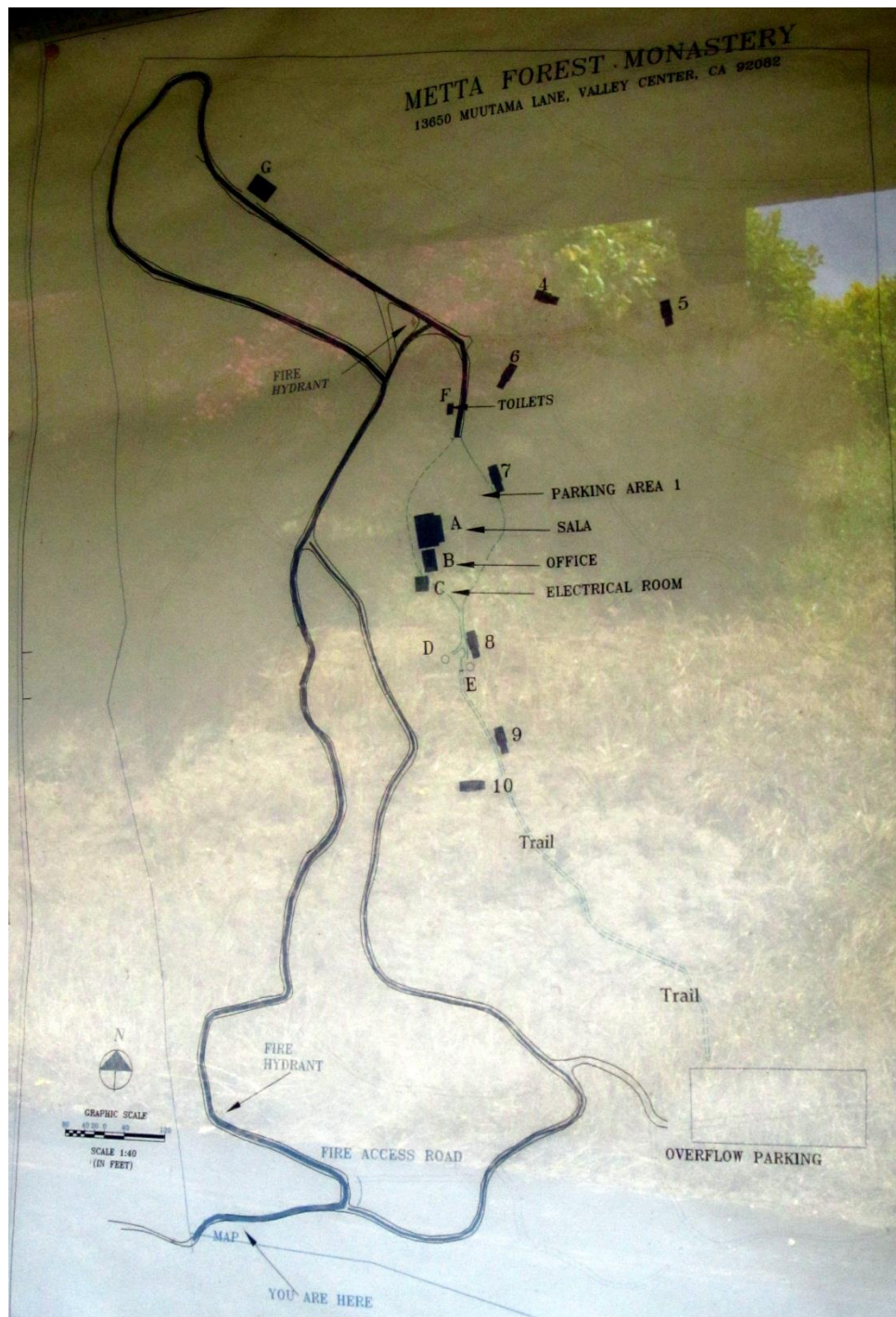


Figure 27. Map of Wat Metta (at entrance to the property). Dark line depicts the road going through the property; entrance is at the bottom of the map.

The two areas for parking are dirt lots. One is by the meditation hall, and can hold approximately 10 cars. A smaller lot is a compacted area of land off the main road by the

lower kitchen, and this lot holds up to 6 cars. If these spaces are taken, vehicles are parked alongside the main road.

Existing buildings were incorporated into the monastery's design. Additionally, Ajaan Suwat and his colleagues added several "temporary" buildings, including the guesthouse, meditation hall, and huts. These temporary buildings were built in 1990 but were still present during my visit in 2010. They were constructed with a wooden frame and set on top of cement blocks. The buildings have no foundation and are at high risk from earthquakes. At the time of my research, the abbot was working with lay supporters to create a redevelopment and architectural plan. These plans include building a dining hall and kitchen closer to the entrance of the monastery's main parcel, as well as replacing the old buildings with fire-resistant, well-insulated earthquake-proof buildings. They do not intend to incorporate air-conditioning into any of the buildings (Abbot of Wat Metta, personal communication, May 31, 2010).

According to the abbot, Wat Metta intends to gradually decommission the avocado orchard and restore the orchard land to native conditions. Monastery management told me they view it as environmentally irresponsible to maintain an avocado orchard in the midst of Southern California's continuing water crisis. They also view it as economically impractical because of increasing water prices and the need to retain outside personnel to manage the grove. Moreover, avocados are not native to the region, which creates horticultural problems:

You have to worry about the temperatures – if it's too hot, too dry, too cold. We had a big freeze here a couple years back and so the monks had to spend the night lighting smudge pots to keep the trees from freezing. That's part of having an avocado crop in a temperate zone like this. You have to worry about when things get too cold, whereas if it's a natural forest, you don't have to worry about that.

The trees are resistant. They're adapted and you don't have to worry about polluting the atmosphere with all the extra diesel fuel being burned. (Abbot of Wat Metta, personal communication, May 26, 2010)

As avocado trees develop diseases, die, or stop producing fruit, workers go through the orchard and cull the trees (Figure 28). Each tree that is cut down is replaced by a native, drought-tolerant species, such as the Coast Live Oak (*Quercus agrifolia*). The abbot said a few avocado trees will be spared so that the monastery will have access to homegrown avocados (Abbot of Wat Metta, personal communication, May 31, 2010).



Figure 28. Wood piles from culled trees.

Government regulations require Wat Metta to clear land to create fire breaks. Although the 80-acre parcel is off limits to anthropogenic disturbance for “religious reasons,” it is comprised entirely of native chaparral habitat and the government requires that it be mowed once every two years to maintain a firebreak. In order to comply with

San Diego County regulations, Wat Metta hires someone to create the firebreak. According to the abbot, this person mows “as little as we’re required, which means there’s a little island of un-mowed chaparral in the middle of the mowed chaparral” (Abbot of Wat Metta, personal communication, May 26, 2010). Additionally, the monastery is required by San Diego County law to clear flammable vegetation for at least a distance of 30 feet around the buildings.

San Diego County regulations prohibit individuals from tampering with riparian areas. The government also monitors agricultural land for fruit fly infestations. If the government determines the orchard is infested with fruit flies, they spray the orchard with “organic” pesticides.

Water

As stated previously, Wat Metta’s primary source of water is the Valley Center Municipal Water District. The orchard irrigation system spans 40 of the 60 acres in the grove; 18 hours of active irrigation per day is often used during the hottest months. An avocado tree can require up to hundreds of gallons of water per week during the summer months, and the monastery has somewhere between 3,000 and 5,000 avocado trees (Senior monk, personal communication, May 31, 2010). As such, the orchard’s water costs are extremely high. Expenditures during the summer months range from \$11,000 to \$24,000 per month. Irrigation needs are less during the winter months; the average expense per month during the winter of 2009 was \$11,886 (Wat Metta accountant, personal communication, July 22, 2010).

Domestic water usage is minimal in comparison to agricultural usage, averaging \$113.55 per month (Wat Metta accountant, personal communication, July 22, 2010). Like

energy use at Wat Metta, water conservation is stressed at the monastery, especially as Southern California continues to suffer water shortages. All toilets at the monastery are low-flow (Figure 29) and people try to give water at least two uses before discarding it. For example, after dishes are washed and rinsed, the water is saved for cleaning out other items like the compost bucket. Afterward, the water is drained out over surrounding vegetation.



Figure 29. Signage posted above each toilet at Wat Metta.

Similarly, the abbot stated that he tries to give water at least two uses:

...when I want to take a bath I leave the water in the bathtub and then use that to flush down the toilet. I get a bucket and flush the toilet with the water from the bath. Water that's used for washing things is always then thrown out on the plants to water the plants. We try to give water at least two uses before it gets down in the ground. (Abbot of Wat Metta, personal communication, May 26, 2010)

There is a natural stream located on Wat Metta property; at the time of my research, the stream had not been diverted for human or agricultural use. However, there was a ram pump set up for that purpose. The abbot stated that there was a prospect of using some of that water on the persimmon trees in the future, but at the time, they had not decided to do so (Abbot of Wat Metta, personal communication, May 26, 2010).

Technology

Technology at Wat Metta is limited primarily to tools and machines. These include non-motorized tools like saws, machetes, hammers, flashlights, and gardening tools; motorized tools like chainsaws, weed whackers, and power drills; and the monastery's automobile (a minivan). As with the food, all technology at the monastery was donated or purchased with donation money.

Most gardening work was done without the use of motorized tools. However, construction and property maintenance was most often done with chainsaws and weed whackers, though these activities were infrequent during my visit. The weed whackers were used most frequently, particularly in the avocado orchard where weeds are viewed a persistent issue. Chainsaws were used less frequently, mainly to cull trees; sometimes they were used in conjunction with weed whackers to create fire breaks.

Laypeople are permitted to have laptop computers, cell phones, and other electronic devices, though monastery management encourages limited use of these technologies.

Sociocultural Influences

Moral, Spiritual, Religious Ideas

Following the Precepts

You will recall from Chapter 2 that the five precepts of Buddhism are: 1) not killing, 2) not stealing, 3) not having illicit sexual relations/sexual misconduct, 4) not lying, and 5) not taking intoxicants. At Wat Metta, laypeople are expected to follow eight precepts total; these eight are an extension of the five precepts. The eight precepts narrow the third precept to refraining from *any* sexual activity. The additional three precepts are: 6) not eating after noon, 7) not participating in or attending entertainment or adorning the body with cosmetics, perfumes, or jewelry, and 8) not lying on a high or luxurious sleeping place.

Wat Metta visitors are asked to follow these eight precepts, all of which are taken very seriously, but the precept of not killing sentient beings is among the most important. Here is how the non-killing policy affects daily life:

As laypeople lined up and waited for the monks' arrival during a ceremony, one layperson spotted a large red ant in the middle of the alms path. He hurriedly tried to get the ant to move to a safer spot, because the ant would likely have gotten trampled if it stayed where it was. The ant remained in its spot and soon the monks arrived. Indeed, the ant was in the path of a senior monk, who stopped and waited patiently for the ant to move. When it did not, the monk stepped around it so as not to harm the ant. As the monks were heading back up the hill, the layperson looked down and saw that the ant had been partially squished and was wriggling around, half-dead. Taking pity on the ant, the layperson took his shoe and, with a grimace on his face, ended the ant's life.

Upon seeing this, the lay nun exclaimed, “What are you doing? You just broke a precept!” The layperson explained that the ant was clearly suffering and would have died anyway, and he thought it was best to put the ant out of its misery. Whether or not this was true, the lay nun informed the layperson that he broke a fundamental precept and that it was inexcusable. She told him he could consult the abbot if he thought his actions were right.

A topic similar to the ant incident came up during a question and answer session with the abbot when a layperson asked if it was acceptable to euthanize a suffering pet. The abbot said euthanasia is killing, and a violation of the first precept. He went on to say that the reason people euthanize their pets is primarily so that the pet owner does not have to suffer. The abbot suggested that rather than ending the pet’s life, the layperson should make a pleasant, comfortable, and quiet place for the animal to rest.

Another incident was when the dishwashing station was plagued with small, flying insects that kept landing in the water-filled sinks. A layperson attempted to rescue each one, but they became too numerous and his attempts were slowing down the dishwashing process. He asked the lay nun what he should do. She told him he could continue with his rescue efforts if he felt so inclined, but that the insects were landing in the soapy water on their own accord, so it was not the same as if he were deliberately drowning them.

Additionally, the kitchen staff had to deal with mice pilfering the monastery’s food supplies. They used Havahart® two-door traps that prevent injury to caught animals. When mice are caught, a layperson takes them in a vehicle and releases them off-property. Wat Metta does not use any animal repellants or poisons. Similarly, they did

not use pesticides or herbicides to remove weeds and other unwanted plant material, nor did they use chemical fertilizers or treatments on their crops.

Ironically, each meal included at least one meat item. During my stay, the following meat was served: pork, beef, chicken, salmon and other fish, and reindeer sausages (the sausages were flown in from Alaska). Obviously, people were killing animals, and the monks were eating them. How did this fit in with the non-harm doctrine?

The abbot explained that in the Theravada tradition you personally do not kill an animal nor do you tell someone else to kill it (Abbot of Wat Metta, personal communication, May 26, 2010). Monks are not allowed to take an offering of meat if they suspect the animal was killed for the purpose of feeding the monk.

Ahimsa and Metta

Non-killing is related to two other important Buddhist concepts: *ahimsa*, or non-harm, and *metta*, or loving-kindness and goodwill. These concepts are stressed at Wat Metta, particularly as regards wild animals.

Rattlesnakes are commonly sighted on Wat Metta property (Figure 30), along with gopher snakes and garter snakes (Figures 31 and 32, respectively). When three gopher snakes were spotted near a hut, one snake slithered down a flight of stairs to reach another vegetated area. The other two snakes followed but stopped at the top of the stairs; one went into the garden outside the lower kitchen, the other remained by the stairs. I stopped along with another layperson to watch the snakes. The lay nun came up, and noticed that the other layperson was sitting in the path that the first snake took. She asked him to move. “You’re scaring it,” she said.



Figure 30. Rattlesnake on Wat Metta property.



Figure 31. Gopher snake in the lay kitchen area.



Figure 32. Garter snake in the lay kitchen area, along the garden wall.

At Wat Metta, people may encounter rattlesnakes, coyotes, or bobcats. This prospect was enough to frighten one Wat Metta visitor out of camping in the orchard:

We had a case here, several years back, of a guy from New York who was afraid to stay in the tent out in the orchard, because he had no idea about the animals at all. He had no sense of them, so all sorts of dangers were possible, as far as he was concerned. And it took me a whole week to get him out in a tent. I kept saying, “You walk down these streets in New York I’d be afraid to walk down.”
(Abbot of Wat Metta, personal communication, June 3, 2010)

The abbot discussed his own fear of wild animals. When describing how animals affected his personal wilderness meditation, he stated:

Well, I’ve overcome my fear of snakes. And partly it’s the learning how to understand them. An important thing to understand about snakes, for instance, is that they don’t see anything that’s sitting still. All they see is motion. And so if you’re sitting still out in the forest and a snake comes by, the snake probably does not see you. So your best protection is just to stay very still. It helps to overcome

your irrational fear of strange animals. (Abbot of Wat Metta, personal communication, June 3, 2010)

According to the abbot, overcoming fear of other species involves developing compassion for other creatures. For example, there was an ant infestation in the abbot's hut the morning of my first interview with him. The precept of non-killing prevents monks from exterminating the ants with poisons, bait/traps, or stomping and squashing them. Rather than killing the ants, the abbot tried to figure out why the ants were coming into his hut. His philosophy was that if he could figure out what the ants wanted, he simply needed to deprive them of the source of what attracted the ants in the first place.

So your attitude towards the animals is different. You understand, one, you have to learn a little bit, think a little bit about ant psychology, or snake psychology – figure out ok, why are they coming here, what do they want, and let's deprive them of what attracts them here so they don't keep on coming. And that way it's not just an attitude of, "Ok, if they get into my space I've got to kill them." It's, "Ok, they have legitimate reasons for wanting to be in my space, so maybe I should change the way I live a little bit." And so you've got it your way a little bit for them. And then the result is that you feel like you're living in a world of – you understand other beings better. And there's a greater sense of fellow feeling in the world. (Abbot of Wat Metta, personal communication, June 3, 2010)

The ant infestation example above overlaps with principles of non-harm and non-killing. Obviously, given the first precept, pest extermination is not an option. The monks discovered that the ants were looking for a water source. Additionally, the abbot noticed a correlation between the infestation and changes in weather:

I don't know what it is with ants; they must have some sort of eardrum that detects changes in air pressure, because when a cold front comes through, they know. And if it feels like a storm to them, they want to get out of the ground and move around, because they don't want to get drowned. (Abbot of Wat Metta, personal communication, June 3, 2010)

This observation shows the abbot's attempts to understand the source of the problem, which involves understanding the animal, its psychology and needs. Thai Forest Buddhists recognize that non-human animals also have our same requisites of food, water and shelter.

The monks attempt to design their infrastructure to minimize harm to flora and fauna. The abbot gave an example from his experience in Thailand:

...in Thailand, you build a house up on posts so that you can have tight control as to what can get up into the house. You can either make these little moats that you fill with water or with oil, or you just take a rag and you soak that with oil and wrap it around the post. And then the ants and termites just don't come.

...You have to regularly soak the rag in oil, and there was one time I had forgotten to do that, and sure enough, a rainstorm was coming in and the ants decided they had to get out of the ground and up into my hut. And so I woke up in the middle of the night with ants in my head. And so again, you can't kill the ants; you have to find out where they're coming from and you close off their entryway. And then the ants that are left there, you just basically have to sweep them out. And they have these very soft brooms in Thailand ...so it's not going to kill the ants to get swept. And so you spend a couple hours sweeping the ants out of your hut. (Abbot of Wat Metta, personal communication, June 3, 2010)

Another important consideration in terms of non-killing and non-harm is the concept of sentience. As a participant observer, during the afternoon work period I weeded unwanted vegetation while other laypeople cut down dying trees. Basically, we were killing plants. It is true that the dying trees would have died anyway (as does any other living being); however, I questioned the difference between cutting down a tree and euthanizing a sick animal. When I brought up this issue with the abbot, he told me, "It's killing the tree, but from the point of view of the Buddhist teachings, trees don't have

consciousness and the animal has consciousness” (Abbot of Wat Metta, personal communication, May 31, 2010).

However, not all interviewees agreed that trees lack consciousness. The lay nun, in particular, thought otherwise:

Well, they might have consciousness. They know how to turn towards the sun... they choose, right? They don't choose to go underground; they choose to go toward the sun. So in that sense, I think they have some level of minimum consciousness. They're conscious. It's a different level of consciousness, I guess, but it also depends on how you define consciousness. (Lay nun, personal communication, June 1, 2010)

Following the Precepts

The three additional precepts of not eating after noon, refraining from entertainment and bodily adornments, and not sleeping on high or luxurious beds created for me a lifestyle far less consumptive or complex than what I am accustomed to in my regular disequilibrium lifestyle. I ate one hearty meal each morning, which was enough to carry me through the next morning, even on days when I did extensive hiking.

Because all visitors and residents of the monastery refrained from dancing, singing, watching movies or listening to music, the environment was peaceful, quiet and serene; driving to and from the monastery was limited to necessities (e.g. trips to the grocery store and post office). Most visitors camped in the orchard in small tents; some stayed in the guesthouse, though this was uncommon (during my visit, three visitors stayed in the guesthouse over a period of 3-5 days). There were three rooms in the guesthouse to house overnight visitors, each approximately 200-300 ft², but they were unfurnished (Figure 33). All visitors slept on mats and/or in sleeping bags.



Figure 33. Bedroom in the guesthouse.

I consumed less food than usual, though we prepared large quantities of food each day. I drove to the monastery in a car but used it only once during my stay, which was to buy a memory card for my digital camera when my existing card failed (a 25-mile drive, one-way, into the city of San Marcos). My lodging consisted of a two-person tent on a platform in the orchard, a sleeping pad and sleeping bag. My meditation cushion doubled as a pillow; I kept my clothing in a backpack inside my tent, as well as my computer, field equipment and paperwork.

Attitudes Toward Wilderness

Wilderness is an integral aspect of the Thai Forest Tradition. The abbot says wilderness is a good place to meditate because it exposes people's fears and desires (Abbot of Wat Metta, personal communication, May 26, 2010). As he stated:

...when you're out in the forest, you've got the issues of when you get ill, you don't have a doctor. When you're lonely, you don't have anyone to talk to. At night, it's dark and there are lots of strange noises. And on top of that, there's a strong belief that there are spirits in the forest and they might just come and want to harass you. So there's a lot to test your fortitude and test your defilements. (Abbot of Wat Metta, personal communication, May 26, 2010)

According to the abbot, wilderness is preferred over other environments for several reasons. While wilderness and forests are not necessarily considered sacred, the conditions provided by these types of environments are viewed as important. The quiet allows a person to have time to be by his or herself, a benefit that is often elusive in urban settings. The abbot views wilderness as an ideal place to cultivate good qualities of the mind:

Well, we had an urban meditator come here one time and after the second day complained that it was too noisy in the orchard. "What do you mean, too noisy?" "Well, there's the sound of the beetles walking over the leaves, and the wind in the trees..." And I said, "Well, those are natural sounds, you know." I think the big difference is when you're meditating out alone in the trees, it does different things to your mind, does different things to your sense of who you are. And for some people, have a lot less sense of security meditating out here, and that's a good thing to deal with. You have to learn to overcome those fears. And just being in a natural environment you feel kind of at home. I find myself feeling more grounded when I'm meditating outside than when I'm inside in an urban area. (Abbot of Wat Metta, personal communication, May 26, 2010)

All interviewees articulated the importance of wilderness in the Thai Forest Tradition, and some expressed its significance to their own lives. The lay nun reports that she seeks wilderness for her meditation environment:

I seek out forests for meditation. I feel that I can meditate much better in a natural environment... this is way too [many] things than I'm used to when I go to Thailand. Like this place I go to, there's no electricity, there's no toilets, we use water in the stream. You try to get as close as possible back to simplicity. And that, I think, helps to train your mind very well, because you're living much more simpler. You cut the time that you spent on maintaining things that you don't really need... But the more things you have, the more you are a slave to things.

[The] simple, basic, minimum needs for meditation is the Four Requisites: food, shelter, clothes and medicine. A lot of them come from trees. Food comes from – plants, you eat. And shelter – when I lived over there [Thailand], you made shelter from bamboo. So you live on a platform, next to a tree, and you're protected by a tree. You have a grass roof that's made from the tree. And medicine, in the old days – not now, we have Western medicine – but monks, traditionally they used plants as medicine. And clothes – a lot of the clothes are from plants. (Lay nun, personal communication, June 1, 2010)

Similarly, the nāga said he strongly believes wilderness is one of the most important tools in the Thai Forest Tradition. Learning not to control or manipulate the environment is crucial to developing a strong mind, he said:

There are a lot of different stories of monks in the forest and how it affected their practice. Because inevitably, when you're living in an environment like a forest, there are innumerable conditions out of your control. And obviously, that's certainly not the case when you're in a city. The environment is a controlled environment – that's what makes it a city. In the wilderness, though, and particularly if you were out in an uncultivated wilderness, if you were just in a jungle, you are just another one of the animals out there. And when so few external conditions are in your control, then inevitably the only place that you can really have any real control is inside, is how you deal with these conditions, how you deal with your own mind.

There are countless stories of how really the only weapon, or the only defense, the only protection that you have in the wilderness is your mastery of your own mind. You hear stories of monks who encounter tigers, who encounter wild elephants, and it's only really due to their powers of concentration or their development of virtue that they're able to make it through to survive.

So in that sense, taking a lot of that control that you have over your environment – I mean, going into the forest, then – it allows you to be much more open to adapting to whatever is around you, rather than trying to force or control the conditions around you. (Nāga, personal communication, June 1, 2010)

The long-term visitor reports that nature and wilderness are a defining aspect of the Thai Forest Tradition:

Because you look at city monasteries and things like that, and it's a whole different feel. And I guess defining [to the tradition] in that... most of the monks make it a conscious decision to go out of the city, because they want to be in the forest. They want to be secluded, they want to be away from a lot of people, they want to be closer to nature, they want to live like as close to as a human being is supposed to live, not with these artificial things. Closest to what the Buddha did and taught, so it's an integral part. And it's sad when you hear – in the States but also everywhere – with our forests decreasing, that just means that there's less and less space for a tradition like this to survive. (Long-term visitor, personal communication, June 1, 2010)

Interviewees recognized the importance of preserving wilderness, particularly as regards the survival of this religious tradition. However, they also realize the difficulty in implementing large-scale wilderness preservation:

... obviously there's factors you can't control, like global deforestation, global warming, donors that are willing to do what one gentleman did – which was donate this land. [A] gentleman who used to be here, he now has a place up in Washington where he'll have monks come up there just kind of as a retreat. He essentially bought land and is trying not to develop it but just keep it as close to what it looked like when he got it. So to have other people who see that as a priority and are willing to do that and let you stay and things like that, it's an

integral part [in keeping the Thai Forest Tradition alive]. (Long-term visitor, personal communication, June 1, 2010)

Obviously we don't have the kind of wilderness that Ajaan Mun [founder of the Thai Forest Tradition] and his disciples had 100 years ago, but there are still areas available – limited, though still available. And that is a serious concern because the forest has been an extremely important part of the development of this tradition. It's largely due to that aspect... [of] conditions are so out of your control, because so many conditions are out of your control you have to focus on your own mind. I mean, you're really up against the wall. It's either master your own mind or die, in that situation. Although it may not work out for everybody, obviously, it has produced a lot of really high quality teachers who have mastered concentration, who have Right View, and so it is a big question mark about exactly how the tradition is going to adapt to the changes in the environment. But I think as this tradition, in America, grows, I think that there will be other areas that clearly are not those kind of wild, uncultivated jungle, forest areas, but at least areas like this [at Wat Metta] in which there is that element of instability in your surroundings. (Nāga, personal communication, June 1, 2010)

Religious Beliefs

In addition to the eight precepts, other religious beliefs guide the interactions between humans and the environment at Wat Metta. I was told that the 80-acre parcel of land that was purchased in 2000 will “never be developed.” The reason for this is based on the Thai Forest concept of *dēvas*, which are a type of non-human being who have characteristics of being more powerful and longer-lived than a regular human being. Essentially, they are supernatural beings, but are not immortal, are not necessarily morally perfect, and are not considered to be gods or goddesses. According to the abbot, *dēvas* live on the 80-acre parcel. He stated that it was because of them that Wat Metta was even able to purchase the land. Here is his story:

When the property first went up for sale it was right after the owner had died. He had originally planned to put an orchard on there and then fell sick just as they

were planning to put the orchard in and so those plans got stopped. I think he lingered on for a couple years and then finally passed away. And so his children, he had four children, wanted to sell the property for \$800,000, which is a lot of money. We said, "OK, let's wait until the price goes down and then we can start negotiating." And eventually it kind of worked its way down to 500-something for 80 acres.

One of the supporters of the monastery is really good at negotiating, so we sent her over to talk to the real estate agent. The real estate agent was one of these born-again Christian types; he actually had a little fish on his calling card. And his first question to the woman who went over was, "Do you take Jesus Christ as your personal lord and savior?" And she said, "Well, I've prayed to Jesus many times in the past and I really respect him quite a lot." And that was good enough for the guy.

So we were able to get the offering price down to 450, which was still way too much for us. I think we had made an offer of 340. And so, it just sat there for a while. And then a young woman whose father owns the orchard cater-corner from us, which is across the road from that empty space, happened to come up to the monastery and she said she'd been to Boston and looking for a job there and she'd met some sort of psychic person who said, "What are you doing here? You've got an orchard back home and if you take care of that orchard it'll take care of you for the rest of your life." And then the woman just went into more detail about the orchard, and she said "Across the road there's this big empty piece of property, right?" "Yeah." "And that's always going to be empty. The dēvas use that as their pathway from the top of the mountain down to the stream. And so they don't want anything built there. There was somebody who was trying to do something there, like build something or put in an orchard or something?" "Yes, yes." "Well they didn't like that – that's why he died."

And so she went into a lot of detail, and I said boy, this psychic woman – I'd like to meet her sometime. So the woman who came to talk about this mentioned this, and so I said, "Next day I've got to go talk to these dēvas." So I went off and stood in the middle of the property, and said, "Ok dēvas, this is our plan for the place. We'd like to buy this land to keep it as, just as a natural piece of land. And if you like that plan, could you please bring the price down?"

Three days later I get a phone call from [our supporter/negotiator] saying that the real estate agent had been off to China doing some work – apparently some illegal religious work, trying to convert people to Christianity – and on the plane

coming back, was thinking about how much good they could do if they had more money. And he was thinking about, “Where could I get some more money?” And he thought about this piece of property over here which was not selling. So he called her up and he said, “You know if you raise your price offer another \$10,000 I’ll go and I’ll talk the owners down the remaining 100,000.” So [our supporter] said, “Are you ok with that?” And I said, “I’m fine. That works fine.” That Sunday, the property was ours.

And so, I made this promise to the dēvas we’re not going to do anything with that land, so I’ve got to keep the promise. (Abbot of Wat Metta, personal communication, May 31, 2010)

Customs and Lifeways

Because Wat Metta is completely off the San Diego County power grid, monastery residents and visitors do not have access to the internet or regular telephones. Communications to outside the monastery are limited to calls made on cellular telephones, though cellular reception is poor throughout most of the property. Moreover, people are asked to use cellular phones only in emergencies, though permanent residents sometimes make calls to family members or to schedule appointments or conduct other chores. The easiest ways for outside people to contact the monastery are by postal mail or to call a cellular phone that is on between the hours of 5:00-6:00 pm Pacific Standard Time, or 6:00-7:00 pm Pacific Daylight Time. If individuals at Wat Metta want internet access, the closest source is the public library in Valley Center, approximately 7.5 miles away.

During my visit, two permanent residents and two long-term visitors had their own vehicles; most short-term visitors (those who stayed only a few days) did as well. The monastery has its own vehicle, too, which is used to conduct monastery business or to transport the monks when necessary. Vehicle use is limited to cut back on consuming

gasoline, and to contribute to the quiet, natural environment available at the monastery. During my visit, short-term visitors never left the monastery during their stay, presumably because they had a limited amount of time at the monastery in which to concentrate on their meditation and escape the everyday concerns of urban life.

Aside from grocery trips, monastery-related business that needs to be conducted in town includes sending and receiving mail at the post office, attending medical health appointments, taking monks to the library, and making trips to the airport to pick up/drop off monks, nuns, and important visitors. However, these trips were few during the period of my research; laypeople (primarily the permanent resident in charge of groceries) combined as many chores as possible into one trip.

Laypeople limited their trips into town to chores such as checking email, sending postal mail, and buying groceries or other necessities. Aside from myself, only one other layperson went into town for non-monastery related reasons. Activities like laundry were done by hand at the monastery. Clotheslines and clips were available for hang drying laundry. I hand-washed my clothing once while I was there and found that it dried quickly in the warm climate. The other option was to take your laundry to a Laundromat in town, though no one did this during my visit. Perhaps it is a more common occurrence in the colder, wetter months.

Though the monastery had its own vehicle, only laypeople were permitted to drive it. The monks at Wat Metta are prohibited from driving for several reasons. According to the abbot's interpretation of the Theravada Buddhist *Vinaya* (code of rules for monks and nuns in the Pali Canon), it is a serious offense to carry money. A person

who drives will inevitably need to get gas, which requires a monetary transaction; as such, driving could potentially lead to committing a serious offense.

Additionally, Thai Forest Tradition doctrine emphasizes that monks minimize their involvement in worldly affairs in order to devote themselves to their Buddhist practice. By residing at a monastery, and thus receiving the support of laypeople, the monks are expected to advance in their practice rather than engage in activities outside the monastery. When I questioned the nāga about the policy on driving, he stated:

I personally find it less edifying to see a monk driving. I feel that that reflects poorly on that monk's practice; [it] reflects poorly on that monk's teacher's practice when his teacher will allow him to be involved in worldly affairs in that way. It's my personal opinion that, I mean especially if you're a forest monk, you should be a forest monk. You're not a city monk, you're not a village monk, you're a forest monk, and one should ideally try to minimize their involvement in such worldly affairs. And so, it's really how people then view the monks, rather than... the monks and the practice themselves.

But, there are more practical economic concerns, of course. It saves a lot of money and when it comes to the monastery, essentially it's not your money that you're saving, it's other people's money that you're saving. So you want to be judicious in your use of resources. So that would be another reason why I guess it would be good to try to minimize usage of the vehicles and, inevitably, prohibiting monks to drive vehicles themselves does that. (Nāga, personal communication, June 1, 2010)

Holiday Celebrations

Thai Forest Buddhism is marked by several important events, including the Thai New Year (*Songkran*, usually celebrated from April 13-15), the *Kathina* festival (a celebration, usually held in October, of the end of the three-month “rains retreat”), and *Visakha Puja* (a celebration of the Buddha’s birth, Enlightenment, and death, held on the full moon in May). I was told by many laypeople that these three events are huge

celebrations at Wat Metta. In 2010, Visakha Puja coincided with my stay at Wat Metta, and I was able to participate and observe the preparations for and celebration of the holiday.

On this day, the number of visitors increased dramatically from a relatively small group of 5 people (excluding permanent residents) to over 100 people. However, because the ceremony itself was scheduled for the evening, visitors arrived throughout the day.

To prepare for the ceremony, the monastic community (including nuns) shaved their heads, as is customary on every full moon day. The grounds were swept and cleaned, and large bamboo mats were rolled out and placed on the ground outside the meditation hall to accommodate extra visitors. A group of Thai women brought flowers and incense to be arranged in decorative planters and offered in honor of the Buddha (Figures 34, 35 and 36).



Figure 34. Floral preparations for Visakha Puja.



Figure 35. Floral arrangements in the meditation hall.



Figure 36. Buddha statues and figurines, photos, candles, incense and other decorations inside the meditation hall.

The ceremony itself took place in the evening just before the group meditation session. The ceremony began by the abbot leading everyone in Pali Buddhist chants. Individuals were then given a set of three incense sticks. After lighting the incense, the group proceeded to parade in single-file, led by the abbot and other monks, around the meditation hall three times. We were instructed by the abbot to “honor the Buddha, dharma, and sangha in our thoughts.” When the procession finished, the incense sticks were placed in a large holder. Once everyone was seated, the group meditation session began and the abbot gave his nightly dharma talk.

The ceremony ended around 10:00 pm. Many visitors who came specifically for the ceremony left the monastery at this time; others stayed overnight and left the following morning. A smaller group stayed for several days.

Impacts

Environmental

Water

Wat Metta most significant direct environmental impact is its heavy water use. The avocado orchard consumes massive amounts of water that the natural surrounding environment cannot provide. Using the senior monk’s estimations, I calculated that the avocado orchard requires approximately **2.4 million gallons** of water in a typical summer month (Senior monk, personal communication, May 31, 2010). However, if the monastery successfully converts the grove to natural conditions, Wat Metta’s impact on water resources will be drastically reduced. Domestic water use is extremely minimal in comparison to agricultural use – approximately 0.5% of total water usage.

Human Waste

The two septic systems have unequal loads. The system connected to the guesthouse, kitchens and monks' huts has a much higher load than the system connected to the bath house. As such, monastery management encourages people to use the bath house rather than the bathrooms in the guesthouse during times of high visitation (Figure 37). In some instances, the uneven load results in one system backing up and overflowing, though this does not happen often, according to a lay resident.



Figure 37. Notice posted on guesthouse bathroom doors asking visitors to use the bath house facilities.

Wat Metta does not appear to experience problems with their septic fields. The persimmon and avocado groves did not look unhealthy nor appear to be toxified, nor did it smell like sewage anywhere on the property. However, given that septic systems have limited load capacity, it is possible that sewage is leaching out of the system and into the surrounding environment. It is well known that septic systems are associated with environmental problems such as groundwater pollution, emission of toxic and greenhouse gases, eutrophication of nearby water bodies, and toxification of soils.

Additionally, problems arise when people use chemicals to clean the showers, sinks and toilets. According to the lay resident in charge of maintenance issues, chemicals (such as chlorine) in these cleaning agents kill the bacteria population in the septic system. Without bacteria, the solid matter in the septic tank cannot be digested, and this results in a buildup and possible overflow of solid sewage. The abbot told me about an incident at Wat Metta when one septic system overflowed and monks and laypeople abandoned their daily routine to spend hour after hour cleaning up the mess and fixing the problem with the system. To avoid these problems, monastery management asks people to clean with gentler products like soap and vinegar.

Laundry and dishwater are other forms of human waste. Instead of draining into the septic system, laundry and dishwater (as well as leftover tea and coffee) are dumped over vegetation by the dishwashing station. The laundry detergent used is not advertised as biodegradable or “environmentally-friendly,” nor is the dish soap. The chemicals in these products are then taken up by the soil and vegetation, which may have adverse effects on the microhabitat around the dishwashing station. From my observations, however, the vegetation in this area is robust.

Composting, Trash, Recycling, Reuse

Paper, cardboard, batteries, newspapers, plastic, aluminum foil and cans, and paper towels are recycled. All utensils, dishes, and cookery are reusable items; Styrofoam and plasticware are not used. These practices minimized the amount of garbage that left the facility, which during my observation amounted to a filled 30-gallon trash bag every three days.

Food leftovers are saved as long as possible but if there is not enough storage space or the food is too perishable, the food is put into containers and given to the orchard workers. Food scraps are composted or fed to coyotes and other wild animals. The “coyote pile,” as it is called at Wat Metta, is located on a hill immediately north of the monastery at approximately 1200 ft. elevation.

Composting food scraps has negative and positive effects. On the one hand, if composting is done properly it can enrich the nutrient content in the soil. On the other hand, if it is done wrong (for example, if the wrong materials are composted) toxic substances can leach into the soil and poison the environment. At Wat Metta, people are careful to compost only uncooked food and fruit peels/cores.

Contrasted to this, feeding wild animals has mostly negative consequences. From my observations, laypeople are well-intended when they dump leftover food on the coyote pile. Instead of “wasting” the food, it is passed on to other organisms to consume. However, feeding wild animals habituates the animals to seeking out food scraps from humans. It is probable that the coyotes feel comfortable enough to wander through the avocado orchard at night to look for food because they have become accustomed and desensitized to human activity. This desensitization is not beneficial for humans or

coyotes, as it likely increases the frequency of human-coyote encounters. On Wat Metta property these encounters pose less of a problem for the coyotes – people are not allowed to kill anything. However, if these same coyotes seek food from neighboring communities, they risk losing their lives.

Additionally, ingesting human food on a regular basis may cause physiological problems for wild animals. The diet of a typical human at Wat Metta is not the same as the natural diet of a wild coyote. The animals may develop health problems, and/or they may learn to teach their young to look for food at the monastery rather than hunt for it themselves.

Visakha Puja Celebration

On the day this holiday was observed at Wat Metta, more than one hundred visitors came to the monastery specifically for the celebration. Though some visitors carpooled, there were many vehicles on the premises; approximately 60% of the vehicles were sports utility vehicles (SUVs). The small parking lot located at the top of the hill by the meditation hall was full. Other parking areas were full; the road was lined with parked cars. People drove from as far as Santa Barbara, which is 215 miles northwest of Valley Center. This travel required massive consumption of fossil fuels and resulted in an increased output of air pollutants. As well, the increased foot and car traffic resulted in trampled vegetation, soil compaction, and increases in airborne dust.

Wat Metta did not set up extra infrastructure to house the additional visitors. All visitors used the same bathrooms, tent/meditation space in the orchard, and community areas. While this created a larger than average input into the septic systems, there were no problems with the systems, according to my observations.

Despite the large number of people, the property remained tidy and clean, though the amount of food consumed and garbage produced increased. Visitors were not rambunctious or loud, though the increased automobile traffic caused elevated noise levels. Most nights I heard coyotes howling and barking, but not during Visakha Puja. The coyotes' sounds may have been drowned out by anthropogenic noise, and/or the coyotes may have been scared away by the crowds.

New Development

When Wat Metta implements its new development plan, land will inevitably be altered and habitat destroyed. Additionally, the added buildings will accommodate an increased number of visitors. Even though visitors must gain permission from the abbot before staying as an overnight visitor, new development will likely result in higher visitation, which means more traffic, pollution, noise, consumption, garbage production and human waste outputs.

Regulation-Inspired Land Management

Because Wat Metta must follow government regulations as regards fire breaks and fruit fly infestations, monastery management engages in habitat destruction and degradation. Mowing the 80-acre parcel and cutting down trees to create fire breaks disrupts the flora and fauna communities that inhabit those areas. Also, if San Diego County's agricultural department determines the orchard is infested with fruit flies, they will spray the orchard with "organic" pesticides. The abbot speculates that while these pesticides may be slightly more "natural" than inorganic pesticides, it is not any less deadly (Abbot of Wat Metta, personal communication, May 31, 2010).

Sociocultural Impacts

Individuals interviewed at Wat Metta said the world would be a much more peaceful place, with less emphasis on possessions and self, if Thai Forest teachings were more universally followed:

I think the animals would be treated a lot better. We'd be a lot more frugal in our use of things, and I think that's one of the main problems of environmental devastation is that we're just using so much. So, there'd be a lot more frugal use of resources.

A greater appreciation that you really do need wilderness not just as a nice place for people to play, but there's been a long sense in Buddhism that wilderness is what keeps Buddhism alive. You may have read the piece I wrote on that, which is that when monks move into the cities, they start getting domesticated and the practice begins to deteriorate. So people go out in the wilderness and they start trying to find other monks who are really serious about their practice, and there's like this permanent bank that you can draw on whenever you need it; sort of a revival of the practice.

And so the sense that wilderness being a very valuable place spiritually I think would be a bit greater. And you'd see more of it. It's not so much that the wilderness is sacred but it's just that it's a really good place for people to develop the mind, qualities of the mind. (Abbot of Wat Metta, personal communication, May 26, 2010)

The lay nun stated that even the smallest adherence to a single precept could make a world of difference in how people interact with each other:

Oh, just following the five precepts would be a huge change. They don't even have to live like this [austerely]. If people don't kill – just one, actually, just one precept. You know, not even kill animals, just not kill human beings, just that one part of the precept, you can find that if you still need to kill animals to eat or whatever, that's something else. But if people can just follow one of the five precepts and just focus on humans, the world would be a completely different place. I mean, that's just to answer that. I'm not saying that people should kill animals or anything like that. I'm just giving an example of how just a little bit, even a portion of a precept, if everybody followed it, how this world would be a

very different place. No war. You can't [have war], because you are breaking a precept. (Lay nun, personal communication, June 1, 2010)

The long-term visitor provided a practical answer and applied the question to her own life:

In terms of the economy... it'd be less of this kind of capitalistic me-me-me focus, which would be nice. Sometimes I think that when I look at the way society runs, a lot of it's making busy work. A lot of things, you're kind of generating the work. It's not even necessarily productive work, but because you do this you have to do that, and because of this... and you just kind of go around in a circle – you're just right here, you're just staying in one place kind of circle. So I would think that some of that would improve.

I think people would be nicer. Some of the work environments are just not pleasant. You talk to people who hate their jobs, and it's like, well yeah of course you hate your job. You're doing something that's really not that interesting, and then everyone else hates their job, and you're in that environment.

There would probably be a simplification of the economy. We kind of make ourselves to have all these [different processes], and then that makes [something else], and then you need to get the wrapping to process it, and the refrigeration system in the trucks. Just take 7-11. You have to have the staff. How would you like to be the worker who worked the night shift, just so that some person can go the store at 2 AM and get a can of milk?

In terms of the environment – you see a lot of people that just don't take care of the environment at all. From cultures that throw refuse on the side of the road – and that's all it is, like the earth is just one dumpster – to having no green space in cities. One of the reasons why Bangkok gets hotter and hotter is because a lot of Thailand is deforested. So Bangkok has no shade. It had some before. So the whole global warming thing...a lot of stuff would be so much different.

And we do a lot of things – you know, I was thinking about with the ants and things like that, because [the abbot] was talking about – he has an ant problem. He's always had a large ant problem in his kuti. And I was thinking about that the other day. And, you know, here we are – but they play a role in the framework of the environment. Huge. But if you're living in the city, what would you do? What would I do if that happened in my house? There's no set answer

on that. You just have to struggle with that. But if you eradicate them from one place, then how are they going to change the food chain? So this is trying to have things a little more natural to what the food chain is supposed to be like. Or the closest that we can come to it right now. Obviously, the way the environment is right now is not anything like it was 50 years ago or whatever, but the closest we can get to. (Long-term visitor, personal communication, June 1, 2010)

However, not everyone had as rosy of an image of what a Buddhist world would look like. For example, the senior monk was not optimistic about the likelihood of people changing drastically enough to make a positive impact outside monastic life:

It's possible to hope or suggest that people might learn to live with less, because that's a part of the way that we live, trying not to cause harm if we can avoid it, and trying not to be burdensome. And, part of that is consuming less and living a simpler life. That being said, the culture in monasteries is the culture of monasteries, and the culture outside the monastery is the culture outside the monastery. So people can keep those values alive and hold them up as an ideal and try to expose people and suggest – just by virtue of how you live, not by preaching to people – that you can be happier this way. I don't know how much that'll change what happens outside the monasteries. It's possible that it could, but we've had Buddhism for a long time and we've had deforestation for a long time, too. (Senior monk, personal communication, May 31, 2010)

The nāga saw the potential for economic collapse. He also indicated his doubt about the possibility of people making genuine effort to follow a set of ethical precepts, especially at the same time as providing one's livelihood:

Well, I think the world economy would probably collapse, to tell you the truth. Because inevitably, certain industries involve – or are essentially – the act of breaking certain precepts. It wouldn't work for a butcher to be – or I guess if he's just dealing with the dead animal, but even then he would be involved in the killing of the animals in some way. So there are certain professions that are wrong livelihood, so I don't think it would be practical, then, for – I guess if a person could compartmentalize enough, I suppose – but that would make it extremely difficult, I think. At least, it makes it difficult for me to envision the majority of people genuinely and honestly committing themselves to maintaining

the precepts while providing for the responsibilities they have. (Nāga, personal communication, June 1, 2010)

At a more local scale, Wat Metta provided visitors and residents with an escape from the hustle and bustle of urban life. One lay visitor told me she frequented the monastery as often as possible (every weekend was her goal), even though she had to make the long drive from Santa Barbara. “It’s totally worth it,” she told me.

DISCUSSION AND CONCLUSIONS

The purpose of my study was to explore human-nature interactions using a conceptual framework that emphasizes human ecology, anthropocene geography, and deep ecology. My research is grounded in a scientific and ethical perspective that seeks analysis and remediation of disequilibrium conditions created by techno-industrial society's operating protocols. These disequilibrium conditions affect humans, non-human life forms, and the biosphere. They decrease our ability to experience and embrace topophilia and biophilia; they increase our experience of solastalgia. They decrease biodiversity and ecosystems integrity. Ultimately, as geographer Jared Diamond (2005) has so cogently pointed out, these conditions can lead to ecological and social collapse. My thesis research was founded on the intent to discover ways to increase the flourishing of human and non-human life.

Amidst the gathering clouds that hover above and around disequilibrium society, I also acknowledge the godlike abilities and opportunities created by the human species and facilitated by its unique combination of culture, evolutionary advantages, and technology. It is emotionally and spiritually disheartening to pull back the veil on our society's infrastructure to see the disequilibrium harms that fuel and support the lifestyles we have grown accustomed to. As denizens of the 21st century, most of us have never known the physical strength, lifeways and survival skills possessed by native peoples and our ancestors who lived in the generations before the dawn of machines, electricity, petroleum, nuclear power and globalization. We are totally dependent on a web of commerce, labor, materials and culture that gives us delight, safety and identity. But when we realize that this web is in many ways similar to a spider's web that ensnares us

as prey, we seek mitigation. Many of us in academia, the sciences, and ideals-driven society seek what may be an impossible hybrid: a world where techno-industrial civilization co-exists with thriving biodiversity, healthy ecosystems, social justice and a human orientation towards sharing the planet fairly and kindly with others of our species, as well as with nature.

When I was discussing my thesis proposal with a colleague, she told me I was a “lofty idealist” whose yearnings and ideas were admirable but impractical, almost in the realm of “magical thinking.” I have been repeatedly advised that there is no stopping the human species in its march of conquest across the planet, and that it isn’t even worth trying to explore alternative paradigms. I have been accused of being a “tree-hugger,” “pagan,” “communist,” “enemy of American values,” and “traitor to your own species.”

One of my critics told me to read the book *The Ecology of Eden*, written by a philosopher who dabbles in ecology and environmental musings (Eisenberg 1999). His book, although detailed and poetically written, borrows a lot from Yi-Fu Tuan in that it organizes the world into various sectors, most of which are dominated by humans.

Another Tuanesque feature is the author’s stipulation that modern non-indigenous humans are most suited for living in build environments that exclude wilderness, because wilderness is somewhat scary and uncontrollable. The author clearly recognizes, without saying it explicitly, that we are in the Anthropocene epoch: in his discussion of wilderness, the built environment and ways to create “Eden” on earth, he acknowledges that humans call the shots (Eisenberg 1999). If wilderness is to exist at all, it will be for our benefit, and because we allow it to.

The author engages in elegant sophistry (although his disingenuous, anthropocentric approach to may be subconscious) by dividing concerned people into “Fetishers” and “Managers” (Eisenberg 1999). Fetishers are those who want to roll back the influence of humans and restore true wilderness to earth; Managers are those who want to engineer the earth. The author presents the Managers in a much more favorable light than the Fetishers, and dismisses deep ecology and spiritual ecology in an almost sneering tone.

Citing environmental writer Bill McKibben’s recommendation that humans drastically cut back on their consumption and reproduction, the author dismisses deep ecology as part of the Fetish domain while also dismissing the idea that humans should return to a “humbler” way of life (Eisenberg 1999: 415). The book’s ultimate message is that techno-industrial society is here to stay, will increasingly rule the planet, and is good for nature and humans. Moreso, the author says, everything humans do – no matter how destructive – can be seen as a part of nature (Eisenberg 1999). The cyanobacteria argument is trotted out to support the assertion that just because one species, or extinction events such as asteroids, ice ages and volcanic eruptions, may wipe out a good portion of the life of our planet, that doesn’t mean all life will disappear forever.

As you might expect, I do not share his viewpoints. My objective analysis is that they are not scientifically accurate or ethically complete. And yet, his views are among the dominant views that one finds in academia and popular culture. Other than deep ecology, radical environmentalism and similar paradigms, the overwhelming weight of opinion is that humans have a right to keep on doing what they are doing, regardless of how human activity affects other species and the earth. And so you can understand the

relief I felt when I first discovered Wat Metta Forest Sanctuary and Thai Forest Buddhism. Listening to hour after hour of streaming online “dharma talks” given by Wat Metta’s abbot, I believed I may have found an equilibrrious microcosmic society.

The abbot’s teachings on matters of practical, ecological and social factors (I excluded religious doctrine such as reincarnation and karma) seemed to echo deep ecology and environmental-social justice frameworks. It appeared to me as an outsider that Thai Forest Buddhism embodied an approach to life that eschewed consumerism, materialism, capitalism, exploitation, killing, and environmental destruction. The dharma talks recommended that humans immerse themselves in awareness of existence as it really is, and to respond to suffering and the causes of suffering by adopting a humbler, quieter, less rapacious lifestyle. The abbot also spent considerable time asking people to examine their thinking, attachments, beliefs and behaviors. Anger, sadness, lust, greed, violence, addiction, revenge, worry, and other traits are to be found and rooted out of one’s personality. The teachings emphasize respect for the feelings of others, including non-human animals.

Not only that, but as I examined what appeared to be the most historically accurate versions of the Buddha’s life, I began to view the Buddha as a long-ago social scientist who left his fancy digs to examine the natural world, human psychology, culture and consequences. If the Buddha had been a PhD candidate, his hypothesis might have been something like this: If people change the way they view themselves and nature, if they meditate, live simply, and emphasize compassion, they can decrease suffering in themselves and decrease the suffering that humans create for other creatures.

One of the limitations of my research is I was not fully informed about Thai Forest Buddhism, Buddhism in general, or Wat Metta policies and practices when I formed my preliminary viewpoints about why Wat Metta would be a good laboratory in which to study alternative societies that are attempting to avoid disequilibrium culture and practices. In part, my lack of information derives from the nature of monastic practices and cultural knowledge that are kept private from outsiders. As well, I do not possess language skills necessary to understand what are said to be the original Buddhist teachings- the Pali Canon. It is not easy as an outsider to understand a religious and cultural phenomenon such as Thai Forest Buddhism.

Perhaps due to wishful thinking, I mistakenly believed that Thai Forest Buddhism, minus the religious aspects, was equivalent to deep ecology. As you may recall, deep ecology places humans as equal but not superior to other life forms. It requests that humans abandon anthropocentrism. It postulates that all life, and the biosphere itself, has intrinsic value regardless of its value in capitalism or other human endeavors. Implicit in deep ecology is the idea that the earth and its creatures are worth preserving...that the wanton destruction of biodiversity and our environment is a violation of the moral and ethical values that distinguish humans from other animals. There is an emphasis on restraint, humility and generosity. We are asked to share the planet with each other and with other life forms in a way that reflects respect for all. Thai Forest Buddhism also values wilderness. It counsels against harming human and non-human animals. It asks for personal restraint that leads to a less consumptive lifestyle. It warns about delusions, desires and traps that lead people to exploit each other and other species.

On the other hand, as I was told during interviews at Wat Metta, Thai Forest Buddhism does not see the earth, its creatures and its systems as things to be “attached to.” Buddhism’s ultimate goal is to end suffering for humans, not to preserve ecosystems integrity or biodiversity. Its prohibitions against harming sentient beings and reducing suffering are not meant to indicate an attachment to the earth or its present state of biological being.

In fact, when I discussed with the abbot and other Wat Metta residents my dismay regarding biodiversity loss, solastalgia and the fate of the earth, I was advised that everything is “impermanent” and passing away. Even Buddhism itself could one day disappear, I was told. One can and should reduce suffering by following the precepts, but the primary mission is to escape karma and bring one’s mind into a state of untroubled presence, rather than to ensure that the earth and all its creatures will be less harmed by anthropogenic activities.

Was this a fatalistic attitude, I asked. Not fatalistic, but realistic, I was told, and one that relieves us of worrying and insisting that we must save the planet. Because ultimately, whether due to the influence of Mara (the Buddhist version of Satan) or the ebb and flow of entropy and contraction in the universe, the earth will be destroyed. Therefore, don’t be obsessed with trying to save it, because in so doing, you create suffering in yourself. I agree with the logic of this advice; solastalgia is suffering. Worrying about the fate of the earth is suffering. But it seemed to me selfish to choose to abandon concern about such issues just so I could calm my mind or make my life safer. I wondered what would have happened if Martin Luther King, Jr. had decided that ending racism and segregation was not worth the trouble it was causing him, especially in light

of reports that he had a vision that he was going to be assassinated. And yet he went to Memphis anyway...and was shot to death.

When I first arrived at Wat Metta and began interviewing monks and other residents, I saw that another research limitation was I could not spend more time at the monastery. It seemed that my nearly two-week stay was not enough to apply the Anthropocene Ecosystems Model fully and accurately. I needed more time to get details about energy and water usage. I was unable to determine how many kilowatts of electricity, pounds of propane, and gallons of water are used at the monastery. It would be beneficial to know the specific amounts used, and to track changes and patterns over time.

Another study limitation is that my research only examines one of many Buddhist monasteries and does not study other types of intentional communities. I was especially concerned that I could not get enough access to monastery leadership, and that crucial information might not be shared with me. Why? One reason is that as a woman I was at a disadvantage in interviewing monks: their precepts prevent them from being alone with a woman, so that monk interviews lacked the one on one, confidentiality that would lend itself to total candidness. I also noticed that some people I talked to seemed to be extremely reluctant to share details about the monastery's land management practices, policies and plans. It seemed that some of my questions were directed at topics monastery management would rather not have discussed. Another limitation is that I could not effectively communicate with some of the day visitors (meaning visitors who did not spend the night) because they did not speak fluent English, and I was not fluent in their language either.

As I reflect on my research, I realize that the time I spent there was adequate for me to see what I needed to see in order to answer my research questions. For example, I had wanted to see if Wat Metta was truly disconnected from disequilibrium society and self-sustaining. I wanted to determine if Wat Metta's policies and practices could perhaps lead the way in showing how humans could live without exploiting animals, plants, land and technology.

It became clear to me early on that Wat Metta was almost wholly supported by disequilibrium society. In its sourcing of food, fossil fuels, infrastructure materials, transportation devices, financial support and other sustenance, it was dependent on laypeople whose alms, donations and other support came from their immersion in the techno-industrial world.

Nor did I see insistence on a systemic, holistic, broad-based definition of ahimsa as applied to the entire chain of sustenance that keeps the monastery's residents alive. Consider the issue of whether it is acceptable to kill animals. Start with the fact that at Wat Metta, nobody kills anything deliberately, not even an ant or mosquito. But one lay supporter had reindeer meat flown in from Alaska and donated it to the monastery. Animal products produced by factory farming, fishing, slaughterhouses and other methods were all implicated in the food chain that feeds Wat Metta's monks and visitors. Fossil fuels are burned to provide electricity and other energy, and of course those fuels when burned produce harmful emissions. There was no stated plan to create a large-scale organic community garden, adopt strict veganism, or otherwise become food independent to avoid participating or benefiting from the web of commerce, pollution and killing that produces and distributes the mainstream food supply in disequilibrium society.

The simplest way of describing it is that Wat Metta is an island of quietude, contemplation and religious devotion supported and surrounded by a vast network of activities and attitudes that clash with Buddhist precepts. A percentage of people in disequilibrium society engage in wrong livelihood- then they take the proceeds of their employment and use them to provide sustenance for or make donations to Wat Metta's monks. I found this troubling on a personal level, and as an academic researcher, I realized that the monastery was not configured as an experiment in living off the grid, with minimal environmental impact or a deliberate refusal to benefit from the technologies and abuses inherent to modern society. In other words, my wishful thinking and projections regarding the monastery were cleared away by the monastery's actual mechanisms. This was not "Metta Deep Ecology Forest Monastery."

On the other hand, Wat Metta does produce valuable goals that harmonize with deep ecology, environmental preservation and respect for life. For example, the monastery's ambience is refreshingly free of leaf blowers, electronica, shouting, profanity, cigarette smoke, freeway noise, commercial endeavors, sirens, development, hustle, bustle or capitalist striving.

Wat Metta residents and visitors are not to consume food more than once a day. They are prohibited from watching movies, listening to music, singing, dancing, wearing make-up, perfume or jewelry, sleep on beds or having sex. Laypeople are discouraged from using cellular phones, talking loudly, and driving into town; monks are not allowed to drive at all. These strictures limit food consumption, shopping, noise pollution and air pollution. Some of the monks' rules are even more stringent. They cannot dig in the ground or even

build their huts larger than a specified size. Essentially, people at Wat Metta are told to not intentionally harm *anything*; this benefits humans as well as flora and fauna.

Other than minor sources of pollution associated with propane use, the occasional presence of motor vehicles, noise from the nearby military base, and smog drifting in from metropolitan areas, Wat Metta's daily environment is relatively pristine, soothing and healthful. Pleasing vistas, native birds and flowers, and the whisper of the wind are a topophilic backdrop that produces healthy results.

The abbot's emphasis on cooperation, meditation and spiritual self-examination almost immediately had positive physiological and psychological effects. Long-standing stress-related disorders seemed to melt away from me within a couple of days of my arrival. I had more energy. I slept better. My mood was elevated. I had a more hopeful outlook on the world. I slept at night with the sound of falling avocados and the occasional coyote, and woke energetic and enthusiastic in the morning, knowing that I'd be enjoying dharma talks, meditation, the company of like-minded people, good food, a natural setting, and a peaceful environment governed by the precepts. Wat Metta's deliberately-created ambience definitely contributes to an increased sense of topophilia and biophilia, and diminished my sense of solastalgia. I could easily see why people chose to drop out of regular society, shave their heads, don a robe, and spend most of their time meditating in the Thai Forest wilderness. It was a path to a version of bliss that most of us in disequilibrium society will likely never experience.

I also noted that Wat Metta's emphasis on the precepts and Thai Forest Buddhism in general led to a more contemplative, reflective and conscience-driven approach to living. Although monks, visitors and lay residents were unable to resolve all the

contradictions of being supported by people who violate precepts, and of being an island of precept observers in a vast ocean of corrupt society, they at least attempted on an almost moment-by-moment basis to be aware of the consequences of every action and thought. Coming from a society where people kill for fun, it was touching to see people who detoured on a walking path to avoid crushing an ant, or who caught mice in harm-free traps and released them rather than poisoning them. Even if the Buddhist emphasis on non-harm derives mostly from a Buddhist's desire to avoid the karma that comes from harming, it still produces people who are far more careful with their actions, thoughts and intentions. And it produces a form of subsidized Eden...a tiny, quiet, gentle preserve that provides a refuge for people being crushed and poisoned in the big cities and in daily lives plagued by worries about money, crime, traffic jams, wars and interpersonal strife.

Future Research

There are many opportunities for further study. The human ecology models created by Force and Bennett, along with my own Anthropocene Ecology Model (AEM) could be applied to urban planning, parks and recreation, "natural resources" management, transportation planning, economics, climate change, human population dynamics, endangered species listings and other issues that relate to human-nature interactions or sociocultural decision-making.

It would be useful to expand my study by using the AEM to evaluate the socioecological aspects of other Buddhist traditions and other Buddhist centers. Given that there is a burgeoning spiritual ecology and "religious environmentalism" movement, we could expand the comparisons and contrasts to examine other religious traditions,

such as Christianity, Judaism and Islam, to determine how their tenets affect human-nature interactions.

We would also look at alternative societies such as the Amish and Quakers, as well as eco-villages, communes, and any community that has proclaimed its independence from the mainstream grid. How well are these societies sourcing materials, infrastructure and life-sustaining food, energy, water and conditions without creating serious environmental or social impacts?

Academicians in philosophy, American Studies, geography, environmental science, political science, planning, psychology, ethics and related fields could do well to explore how self-identity, media, nationalism, ethnicity, gender, socioeconomic status, religion and other factors contribute to perceptions and ideology relating to human-nature interaction.

For geographers particularly, much work needs to be done to expand knowledge and awareness about topophilia, anthropocentrism, human goodness, and humanity's affinity for dominance. I find it disconcerting to see the impressive amount of new thought in humanistic geography created by Yi-Fu Tuan...with hardly anyone following in his footsteps to examine in more detail the many pioneering concepts and questions he first enunciated.

Researchers and academicians in the life and earth sciences could begin looking at planetary systems, biodiversity and biological ecology from a less anthropocentric perspective, and could begin to more often explain to the world that anthropogenic mass extinction is taking place, and what it could mean for us. It would also be useful for them to examine the claims and mechanisms of shallow ecology so that they could point out

that hybrid cars and windmills will not significantly reduce consumption or pollution growth.

At the level of governments, corporations, NGO's and policy wonks, the world's politicians, bureaucrats, economists, and media would do well to examine and implement the recommendations found in *The Commonwealth of Life* (Brown 2008). The author's recommendations are specific, implementable and wide-ranging as they call for humans at all levels to reorient their desires, lifestyles and value systems to bring humanity in line with its highest potential for compassion, sharing and ethics.

Such an effort would have to be combined with academic and professional research into environmental communications, behavior editing, values-based decision-making and related fields...because the relentless momentum of media, marketing, educational and societal programming at the moment is so heavily weighted towards promoting rampant capitalism, globalization, human population growth, and techno-industrial society. How can we get people to see and care about the consequences of the disequilibrium systems that sustain us, and how can we get them to act ethically and with compassion for humans and non-humans?

Regarding Wat Metta in particular, I was not there to be their environmental consultant. But if I had been, the following would be my recommendations to help them increase the non-harm and topophilia aspects of their site:

1. *Develop a rainwater harvesting system.* The monastery receives enough precipitation during the rainy season to benefit from having a large catchment system. Each building that is currently connected to the municipal water supply has room for a water catchment system. Additionally, because

domestic water usage at the monastery is minimal, using rainwater instead of municipal water may significantly decrease their winter water bills (domestic) and reliance on a disequilibrium water supply. Presently, there are no rainwater harvesting systems at Wat Metta.

2. *Significantly expand organic agriculture.* The Wat Metta garden, as it was configured at the time of my research, provides only a tiny fraction of the food consumed at the monastery. The current garden is only a small space hemmed in by a road, the kitchen, a sidewalk and a short wall. Wat Metta has several areas of land that would be ideal for a much larger garden. My suggestion is an area of land across from the compost heap. This area receives a lot of sun, is relatively flat, and is away from the high-activity area of the monastery. Producing food at Wat Metta would have several benefits: reduced grocery spending, peace of mind of knowing their produce was not grown with the use of pesticides or herbicides, and decreasing their reliance on the petro-industrial complex for food.
3. *Upgrade and expand the solar electrical system.* Wat Metta's solar panels and storage battery are outdated, poorly-maintained and do not produce enough power to supply all of the monastery's electricity needs. Monastery management could replace the existing system with a more reliable, durable and efficient system with the capability of providing for 100% of Wat Metta's electricity consumption.
4. *Expedite the orchard's transition to native flora and create suitable habitat for native fauna.* The avocado orchard is intensely disequilibrium. Hass

avocados are not native to Southern California and but they require massive inputs of water that are not naturally available in Southern California.

Additionally, the orchard's existence takes away from available habitat for native flora and fauna. As monastery management transitions the orchard to a native landscape, they should consider what conditions are optimal for native fauna. They should work towards creating environments habitable by native fauna, especially endangered animals (see County of San Diego 2008 for a list of endangered species). They could also plant native cacti, plants, vines and trees that produce fruits, nuts and berries

5. *Designate a land manager.* The abbot told me that Buddhist meditation centers lose their integrity once the centers hire paid staff. Whether or not they utilize a paid or unpaid land manager, I believe Wat Metta would benefit from having an individual or individuals with ecological training who would manage agriculture, ecological restoration, firebreaks and the orchard transition. It would be useful if this person had training in permaculture, ecology, horticulture, organic farming and alternative energy technology.
6. *Stop feeding wild animals.* Feeding wild animals has negative consequences. First, the food eaten by people at Wat Metta is not part of a coyote's natural diet. Feeding the coyotes habituates them to humans. Once habituated, the coyotes may stop hunting on their own and/or teach their young to find the "coyote pile" near the monastery, which has its own negative consequences. Unnatural interactions between humans and wild animals may increase, risking the safety of both humans and animals.

7. *Decrease dependence on disequilibrium society.* A society cannot be truly equilibrium if it sources its food, energy and materials from disequilibrium society. I am not sure if the monastery could institute this recommendation because it is my understanding that the Buddha himself mandated the alms-monks-layperson relationships that almost always involve monasteries being subsidized by the outside world.
8. *Consider avoidance of animal flesh as sustenance.* Thai Forest religious doctrine apparently prevents Thai Forest monks from refusing animal flesh unless the monks believe that the animals were killed specifically to be given to the monks. However, it is somewhat inconsistent to see monks who are prohibited from harming an ant or mosquito eating the flesh of animals that were imprisoned in factory farms or otherwise harmed as part of the food chain that the monks benefit from.

Despite the limitations to my research, this study adds to the relatively small body of research that examines the human ecology and environmental impacts of Buddhist monasteries and organizations. My case study is the only one I know of that measures a wilderness-focused Buddhist community in the context of Anthropocene Geography, the Anthropocene Ecosystems Model, topophilia, biophilia, spiritual ecology and deep ecology.

Epilogue: A World With Less Suffering?

As I wrote this thesis, I applied the AEM everywhere I went and in almost every situation. I was temporarily living as a house-sitter on Florida's Gulf Coast, and often put

on my geography hat to clinically observe the region's densely-crowded urban area and beaches, using the AEM as my frame.

At the beach, jet skis and boats are operated at full speed within inches of the shoreline. If you close your eyes, you would think you were at a NASCAR track. The smell of gasoline permeates the air and water. People in the water often have to rush away in panic to avoid the noisy machines; jet skis travel 60 miles per hour and are unlicensed and unregulated. I have witnessed numerous near misses and several minor accidents involving watercraft.

When I speak to lifeguards and city officials about these incidents, I am told that although government officials recognize the problems created by motorized watercraft, it is impossible to effectively regulate them because Florida has a vociferous, powerful watercraft lobby, and because local government makes money off watercraft rentals, storage and sales.

In the main recreational beach area, people smoking cigarettes use the white sand, and the Gulf, as their ashtray. Large amounts of discarded fast food containers and other anthropogenic debris sully the beach by the end of each sunny, warm day, and are removed by bulldozers. In the Gulf's shallows, plastic bags, plastic drink containers, beer cans and other items drift or sink. In areas of the marine zone where shellfish and other native marine species have their habitat, children and adults with fishing poles, buckets and nets are intent on capturing the animals. They often leave them in the sun to die. Small children chase birds and throw rocks at them. Unleashed dogs, officially banned from the beaches by municipal regulation but present nevertheless, also chase the birds.

Dogs tear up the nests of federally-protected sea turtles and birds. They defecate on the beach; their owners blithely walk on, leaving the poop behind.

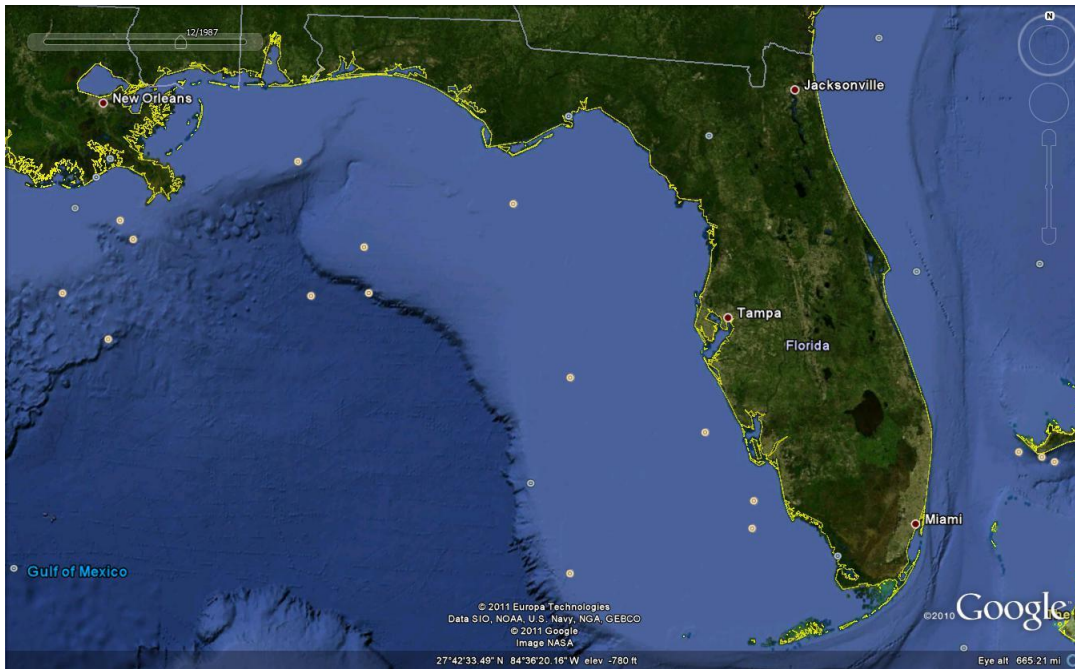
Boaters and jet ski operators violate the Marine Mammal Protection Act by harassing and running into dolphins and manatees. The local marine aquarium periodically takes in dolphins and other marine animals injured or killed by motorized watercraft.

Florida is in the midst of a housing market collapse with significant percentages of commercial and residential property foreclosed, sitting empty, deteriorating. And yet, on the few remaining areas of open space in a county (Pinellas) that looks like Los Angeles county when you view it on Google Earth, 150-year-old oak trees are bulldozed to make way for ever more condominium towers, 6,000 square-foot mansions, parking lots, and strip malls. On the waterfront sit massive luxury condominium towers – empty for years. And more are being built, even though nobody is buying. Where is the money coming from? Why would anyone build anything when so many buildings sit empty?

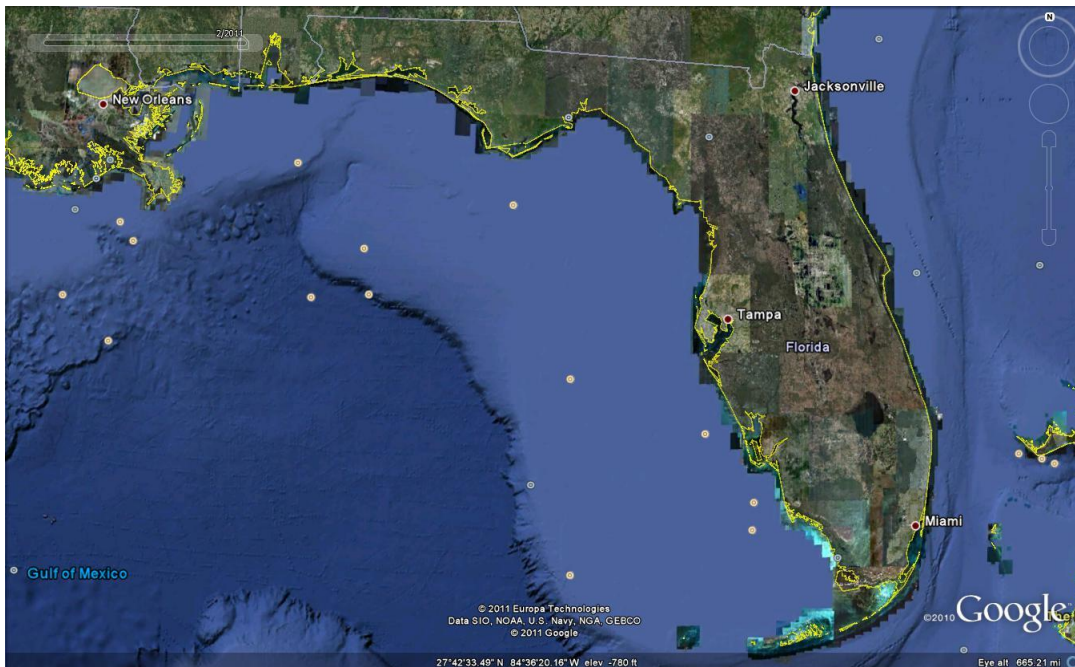
When local government floated an environmental initiative aimed at reducing pollution and creating a quieter, more pleasant city, citizens objected, saying it was not the role of government to be concerned about clean air, clean water, and quality of life. Others opposed any attempt to get people to walk and ride bikes more. Given the high levels of noise, pollution and urbanization in this region, I doubt there is any place around here that qualifies as wilderness. You cannot escape the sound of sirens, aircraft, traffic, dogs and television sets.

Long-time residents and Florida natives tell me how developers and population growth had ruined the “tropical paradise” that the Gulf Coast once was (Figures 38a and

38b). They noted that “there used to be a thunderstorm every afternoon in the summer that you could set your watch by, it was so regular.”



(a) Florida satellite imagery from December 1987.



(b) Florida satellite imagery from February 2011.

Figure 38. You can believe your eyes: Anthropogenic activities have changed Florida from a lush, green paradise (a) to a paved-over urban landscape (b) in less than a quarter century. (Source: Google Earth 2010)

Nowadays, Florida is in what seems to be a permanent state of drought. Native plants and trees are dying of thirst and heat stress. The summer thunderstorms are few and far between. What happened? Development took away the majority of Florida's lush green vegetation that had contributed to the hydrologic cycle. Transpiration from vegetation is severely decreased, and along with it, the rain has gone.

I have been visiting Florida since I was a child, and lately I notice that the awe-inspiring fleets of 40 or more pelicans that used to float the sea breezes in unison up and down this coast are gone. You are lucky now to see one or two pelicans. Gone also are the plovers, willets, herons, egrets, oystercatchers, terns, black skimmers and other birds that used to be in the tidal zones and estuaries by the thousands. And after the BP oil spill disaster of 2010, gone also are the sand dollars, live shells and schools of fish that I used to see when I went swimming. It appears to me from personal observation and scientific reports that Florida and the Gulf are dying.

When I speak to people here about these issues, solastalgia is a recurring theme. Most people who have been here for more than a couple of years lament the population growth, the lack of intelligent land use planning, the increasing air pollution, traffic jams and crime, and the loss of the easy, sweet life that drew many retirees to Florida. The elderly (who used to be a more significant portion of Florida's demographic) feel squeezed out by the increasingly fast pace of life and the frenzied urbanism that make it hard for them to drive, shop and find safe recreation. They are afraid to walk across the street; pedestrian and bicyclist fatalities are higher in Florida than anywhere else in America (Copeland 2010).

Others have no solastalgia to speak of. They are the rah-rah, drill-baby-drill, pave-it-now entrepreneurs, realtors, developers, construction managers, tourism profiteers, fishing boat captains and others who have profited financially from the paving of Florida. For them, the birds, trees, estuaries, dolphins, manatees, topophilia and other features are expendable and meaningless, except that it is harder to market Florida if people elsewhere perceive it as an environmental disaster zone. Florida's new governor is promising to quickly roll back developer's fees, wetlands protection and the rights of local citizens to control development. It is open season on the remaining green spaces, spring, swamps, pine forests, and coastlines of Florida.

If anybody had asked me – and nobody has – I would have been happy to do a pro bono AEM consulting project and provide implementable, cost-efficient recommendations for ecological restoration, topophilia restoration, transportation alternatives, and similar measures that would surely increase Florida's quality of life for humans along with native flora and fauna.

Instead, I find myself gazing at thousands of people on the beach on an unnaturally hot spring day. They are drinking alcohol, smoking cigarettes, flirting, renting jet skis, arguing, watching their kids play, courting skin cancer, blasting music from portable sound systems, bantering, throwing Frisbees and footballs, eating junk food and feeding it to seagulls. A traffic jam snakes eastward from the beach for miles back towards Tampa. Some people will have spent four or more hours in their automobile so they could spend a few hours at the beach; their time at the beach is less than their time in their cars.

On my way home from the beach (I am riding a bicycle), I stop at the local health food store where organic food advocates, vegans, vegetarians, activists, hippies and other “progressive” people shop. As usual, I notice several cars in the parking lot sitting with their engines running and air conditioners on. People lounge for nearly an hour in their cars texting or talking on cell phones. *Or they just leave their cars running while they shop, so their cars are nice and cool when they return.*

Sometimes I ride on a 35-mile-long paved bicycle trail... a narrow linear corridor of trees surrounded by industrial parks and dense urban development. Inevitably, no matter how careful I am or what time of day it is, one or more impatient or uncaring drivers run a red light or otherwise violate my clear right of way so I am almost run over. Oftentimes they add insult to near-injury by screaming profanities or making obscene, sexually-loaded hand gestures. Several places where the bike trail crosses intersections are almost impossible to cross safely. Riding a bicycle here is like a playing a roulette wheel with death.

In moments like those, I recall when Wat Metta’s abbot told me not to worry about the fate of the earth and its creatures because everything is impermanent. I still have not wholly embraced all the implications of his advice, but I definitely understand its value as a defense mechanism to ward off solastalgic despair. And I chuckle at myself, and at the irony of what I discovered about science and the human spirit during this thesis. Here is what I mean:

I academically studied Thai Forest Buddhism because its teachings do not emphasize reliance on invisible gods, angels or supernatural powers. I believe in scientific rigor and empirical observation. I appreciate what I perceived as the “scientific”

approach of Buddhism...an approach rooted in reality, ecology and rationality. Thai Forest Buddhism's basic message is in agreement with what life sciences tell us: all creatures suffer and die, humans are uniquely able to control their behavior and reflect on suffering and mortality, there are no objectively-verifiable invisible sky beings who will "save" us. The Thai Forest tradition is eminently practical in counseling that controlling your mind and behavior to reduce suffering is all you can do. But Thai Forest Buddhism lacks the promise of a heavenly afterlife, the tortured savior on the cross, or the stern but loving Father God that religions offer. It does not whisper comfort into your ear. Thai Forest Buddhism tells you to accept reality, follow the path and the precepts, and meditate.

Confronted by the juggernaut of disequilibrium society and the "banality of evil" that makes earth-killing acceptable to most people, I find myself slipping towards magical thinking...the idea that some miracle could change peoples' hearts and save our world. Specifically, I resort to hope – hope that humans will soon enough realize they are building a heartless techno-industrial world that blots out the stars from the night sky, turns the blue skies brown, kills the oceans and atmosphere, terrorizes and extinguishes other species and robs us of topophilia and biophilia. And hope that this realization causes humans to reject techno-industrial disequilibrium society in favor of society based on respect for the commonwealth of life.

My hope is of course wishful, magical thinking; I see no empirical evidence that humans will change fast enough, or in the right direction. Indeed, it looks like people are more and more embracing the dominant anthropocentric paradigms that command us to

transform the entire planet into an anthropogenic playground and industrial zone totally used, changed and managed by us.

I have no gods to pray to, nor do I tell myself reassuring, wistful fictions about an awakening of ecological consciousness creating a world of ahimsa people who value deep ecology, peace, topophilia, biodiversity and justice. Solastalgia is the appropriate emotion for our times, and it is inescapable for those of us who care about our oxygenated, rare, beautiful island in the universe, our only home, the earth.

Ignorance is bliss but I do not have the luxury of such ignorance. I was raised to care about humans, other animals, and my planet. I am not likely to stop caring. I am not likely to harden my heart. I am not likely to give up my academic exploration of the Anthropocene epoch, or Anthropocene geography. I will do my best, as much as one person out of more than seven billion people can do, to help the world that I love and appreciate. But really, the most valuable lesson I learned in doing this thesis is how to meditate. It is an escape, for sure, into a place of breath, stillness and emptiness where thoughts, worries and sadness temporarily fade away. The meditative state of mind is like a sudden discovery of something graceful, safe and awesome, hidden behind the dark veil of everyday concerns, like what happens to the sky during a total solar eclipse.

Meditating, I am left with bare awareness of the sun on my skin, the caress of the wind, the poignant music of singing birds. *This* is all I really have. This moment. This body and mind. This awareness. This breath going in and out. The living earth and its creatures. But everything I love and need is being used up by my species. The breath I take is filled with anthropogenic chemicals. The singing birds cannot find a safe place to nest. It is hard to learn how to just live with it.

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