

Nature, Genetics, and the Biophilia Connection: Exploring Linkages with Social Work Values and Practice

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Abstract: *Social work's notion of environment and its environmental responsibilities has always been narrowly defined. The profession has tended to either neglect natural environmental issues or accept shallow, ecological conceptualizations of nature as something other, quite separate from the human enterprise and/or outside the reach of social work activity. The Biophilia Hypothesis, first articulated by Harvard biologist E.O. Wilson in 1984, offers social work as a fundamentally different view of the person/environment construct and argues for a primary shift in the way the profession views its relationship with the natural world. This article traces the conceptual development of the Biophilic theory and reviews pivotal empirical evidence explicitly arguing for the essential Biophilic premise that humans have acquired, through their long evolutionary history, a strong genetic predisposition for nature and natural settings. It offers key insights and examples for incorporating Biophilia into social work's values and knowledge base and how it may impact the profession's practice strategies and techniques.*

Keywords: *Values, genetics, practice, Biophilia Hypothesis, environment, ecological/systems, nature*

Nearly every culture, from the early Aboriginal tribes of Australia to the most devoted urbanites of post-industrial Europe or America, have recognized that nature is good for the soul and absolutely critical to physical survival. Daily, untold numbers of people gaze out a window at an uncomplicated scene of trees and diminutive wildlife or tend a flower garden and feel a deep sense of satisfaction and connection to an unseen natural beneficence. At any given moment a child or older person caresses a cherished pet and feels less alone and more loved. These phenomena and countless others like them furnish compelling evidence of what Pulitzer Prize-winning author, Harvard biologist, and Distinguished Professor Edward O. Wilson calls the *The Biophilia Hypothesis*. Wilson (1984) concluded in his groundbreaking work *Biophilia: The Human Bond with Other Species*, after a generation of research and observation, that human beings not only derive specific

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aesthetic benefits from interacting with nature, but they also have an instinctive, genetically-determined need to deeply affiliate with natural settings and life-forms. Wilson (1993, 2002) and other biophilic theorists contend that the need to affiliate with non-human organisms and eco-systems is innately biological and intensely emotional. Human responses to these deep affiliations have complex benefits that not only enhance psychic and physical well being but they are critical to our adaptive skill for survival as a species.

Evidence of this biologically determined need to affiliate with and experience nature has persisted throughout pre-modern and modern cultures. For example, more than one-half of all U.S. households own pets (Beck & Myers, 1996) and animal depictions comprise over 90% of the imagery used in language and counting acquisition exercises in children's preschool books (Kellert, 1993). Recent research also shows that an estimated 70% of all adolescents speak to or confide in their pets (Frumkin, 2001). More Americans visit zoos during an average year than attend all professional football, basketball, and baseball games combined (Kellert, 1997). People crowd into national parks to experience natural landscapes or travel thousands of miles to stroll on a beach. Visits to national parks and protected areas have risen so dramatically in the past few years that many are now beset with an excess of interest (Kellert, 1997) that threaten to harm or even destroy the fragile ecosystems of these cherished locations. This inclination to affiliate with nature is more than an aesthetic sensibility or emotional support mechanism. It is, according to biophilial theory, integral to healthy human development (Kellert, 1997; Orr, 1993). The essence of biophilia is that human beings have a need—a biological imperative—to connect with nature in order to maximize their potential and lead productive, fulfilling lives.

Biophilia theory is still in its early developmental phase. Nevertheless, researchers from diverse disciplines such as architecture, landscape design, psychology, biology, genetics, child development, geography, and evolutionary science are beginning to critically examine and detail both the limits and possibilities of this emerging inter-disciplinary impulse (Frumkin, 2001). Wilson, considered the progenitor of the nascent fields of evolutionary psychology and sociobiology, has led the way in these efforts by asserting that humans developed in a co-evolutionary manner. In other words, genetic pre-dispositions arose within natural settings and local contexts, and as a species, we have been intimately tied to a variety of natural environments. Cultures, too, have developed over time, partially in response to local, natural conditions. These pre-dispositions play a pivotal role in human evolution because they have led to the adaptation of the species. Other eminent scientists and scholars, including Stephen Kellert, Professor of Forestry and Environmental Studies at Yale University and Robert Ulrich, Professor of Architecture at Texas A&M, also continue to verify from extensive cross-cultural research that our eon's old affiliation with nature has conferred advantages in our species' survival throughout history (Kahn, 1997). From this evidence it seems clear that people continue to need and value nature precisely because of the genetically encoded adaptive benefits it has conferred upon us physically, emotionally, and intellectually (Kahn & Kellert, 2002; Kellert, 1997). This article focuses on a portion of this expanding data, suggesting a biophilia connection and what this has to recommend to social work theory and practice.

EVOLUTIONARY FOUNDATIONS OF BIOPHILIA

For nearly all of human history people have lived in situations that are deeply embedded into the natural environment (Eisler, 1990). Survival depended on familiarity with all aspects of physical, natural surroundings. Over millions of years, a kind of bio-cultural evolution progressed, wherein genetics and culture evolved simultaneously (Verbeek & de Waal, 2002). Propensities for certain behaviors (culture) were spread by natural selection if they bestowed adaptive advantage and, thus, the ability to reproduce successfully (natural selection). Wilson (1993, p. 33) explains: "A certain genotype makes a certain behavioral response more likely and the response enhances survival and reproductive fitness...the genotype consequently spreads through the population and the behavioral response grows more frequent." It would be highly unlikely that these adaptive advantages, developing over the course of literally millions of years from early *homo habilis* to more recent *homo sapiens*, would somehow be diminished simply because humans began cultivating crops, domesticating animals, creating technologies, and forming collective settlements. Thus today, an intriguing body of research suggests that people still routinely choose natural landscapes such as water views or eminences near water from which park-like land can be viewed. This is probably an important remnant of the fact that all natural selection is "about adaptation to changing local environments" (Gould, 1996, p. 139).

Safety and the Savanna

It is now generally accepted in the scientific community that humans lived and evolved for most of their two million years on the savanna of East Africa (Eisler, 1990; Haila & Levins, 1992; Kahn & Kellert, 2002; Ulrich, 1993; Wilson, 2002). This setting was ideal, because certain features of the landscape offered enhanced chances for survival. A basic tenet of biophilia is that "humans function optimally in environments that possess attributes of the natural settings in which they evolved" (Knopf, 1983, p. 213). The savannas provided numerous major advantages for early humans. They offered visual openness and thus few hidden predators. They had abundant plant and animal food sources and reliably available water. The trees were spaced distances apart or in small clusters and were shaped to provide either vantage points for surveillance or escape opportunities (Ulrich, 1993; Wilson, 2002). Because humans evolved over millions of years in this environment, biophilic theory asserts that we have become physiologically and psychologically adapted to these particular types of natural settings (Kahn, 1997; Kahn & Kellert, 2002).

Indeed, Ulrich (1993) found that certain cross-culturally consistent preferences provide empirical support for the hypothesis that biophilia is grounded in genetics. Groups as diverse as North Americans, East Asians, Australians, Europeans, and Central Africans show a pervasive bias toward savanna-like natural environments. These preferences have also been found to exist across all age groups and even among children as young as seven years old (Ball & Falk, 1982; Newell, 1997). The research demonstrates, for instance, that the species of trees rated most attractive by virtually all cultural groups match the prototypic savanna tree (Ulrich, 1993, p. 5) where "canopies were moderately dense and trunks bifurcate

near the ground." Findings of cross-cultural preferences for globular or small groupings of trees and away from conical or columnar tree forms and other savanna-like conditions of spatial openness support the genetically-based condition of biophilia (Sommer & Summit, 1996; Wilson, 1993). Other features of the savanna biome that continue to be cross-culturally valued are uniform grassy ground surfaces or open landscapes with smooth ground texture and low-action waterscapes (Kahn, 1997). A preference for green, verdant vegetation, flowers, and especially water, exists today probably because throughout evolution they could be associated with the necessities of food and water (Ulrich, 1993).

Biophilia asserts that these seminal preferences and many others like them are closely tied to the genetic model of environmental response. Thus, "People may have an evolutionary predisposition to view vegetated places as safe and resource rich" (Sheets & Manzer, 1991, p. 301). Kaplan (1983), for example, studied views from homes and found a positive correlation between the presence of trees and neighborhood satisfaction. Proximity to natural areas and/or the increased presence of trees also increased the perception of support from neighbors and feelings of friendliness toward neighbors. Neighborhoods are perceived to be better, safer, cleaner places in which to live and easier places in which to make a living. Not only do people prefer to see the natural world from their homes, but having such views alter people's experiences of places and effects their satisfaction with physical and social environments. People think more creatively, feel friendlier, and become more cooperative and less sad when surrounded by vegetation. There are also economic advantages to having nature close to home. Features such as trees and water increase property values (Kellert, 1997). Gold (1997) found homes and business property located next to well-landscaped parks hold higher value, rental rates the highest for properties with a view of water, and a lower rate of turnover in property ownership in well-landscaped neighborhoods versus those lacking in vegetation.

Natural Versus Built Environments

One of the most revealing empirical findings of the existence of biophilia is the consistent tendency of people to prefer natural scenes over built views. Numerous studies (Heerwagen & Orians, 1986; Kaplan, 1983; Newell, 1997; Shafer & Tooby, 1973; Sheets & Manzer, 1991; Ulrich, 1981, 1983) have been unanimous in showing that even unspectacular or sub-par natural views elicit higher rates of aesthetic preference and pleasantness compared to very few well-known urban views. Earlier research has assumed that preference was a matter of learned response and therefore predicted differences would be found among urban and rural dwellers, as well as among cultures. Shafer and Tooby (1973), among others, found this not to be the case. There is great similarity in response to natural scenes among individuals and across groups. Lacking natural views, people prefer environments built with water, trees, and other vegetation to those without these features (Kahn, 1997). Ulrich (1983) and Smardon (1988) found that urban parks with savanna-like features add greatly to the aesthetics of a cityscape. Kellert (1997) notes that when asked to depict an ideal landscape, people consistently describe scenes containing waterfalls or nearby water, flowers, vegetation with fruits, park-like settings, and branching-canopy trees. Kellert (1997, p. 41) is convinced that this "...instinctive

aesthetic appears to be tied to the increased likelihood of encountering sustenance and security." When given the option, people will choose landscapes that "...fit with patterns from deep in human history on the savannas of East Africa" (Kahn, 1997, p. 1).

BENEFITS OF NATURE AND ANIMALS

If certain natural settings have promoted and currently reflect evolutionary survival, and if the biophilia connection to these natural places exist as hypothesized, then, these same constituent places should still show evidence of continuing to nurture human well-being. Ulrich (1993) and Kellert (1997) analyzed more than 100 studies that had shown exposure to natural areas, especially those with savanna-like properties which have powerful impacts on human physiology, psychology, and metaphysical awareness. They concluded that this postulated biophilia relationship does, in fact, exist even if not yet fully understood. Indeed, minimal contact with nature and other-than-human beings, such as looking out a window or having a pet, has a profoundly positive impact on human functioning, which is often disproportional to the amount or degree of exposure to these natural domains (Herzog & Bosley, 1992; Kahn, 1997).

Nature: Physiology and Stress Reduction

The belief that exposure to trees, water, and other natural scenes tends to promote well-being and provides restorative benefits from the burden of everyday living is documented from Roman times (Perlmán, 1994; Ulrich et al., 1991). In more recent history, Frederick Law Olmstead, the architect of Central Park in New York City, wrote of his belief that the pressures associated with cities could be mitigated by viewing nature (Ulrich et al., 1991). Olmstead believed that nature exercised the mind without fatigue and that it acts as a tranquilizer for the mind while simultaneously enlivening it. Even today, more than 130 years later, there is mounting evidence from a variety of disciplines that he was correct; natural settings have restorative capacities (Hartig, Mang & Evans, 1991; Ulrich, 1984). Affiliating with nature, either directly or through a surrogate, frequently provides a way to escape from the pressures and strains of daily life. Even short exposures to nature have an important function for many city-dwellers in facilitating recovery from noise, crowding, and the annoyances of urban life (Herzog & Bosley, 1992; Ulrich et al., 1991). Kellert (1993) states: "The solitude of nature can be an antidote to the excessive stimulation of modern life" p. 94).

Similar kinds of benefits have been documented for persons suffering from severe stress. One study (Ulrich, 1993) asked people to describe the settings they sought when they were stressed or depressed. More than 75% of respondents described outdoor places that were either natural environments or urban settings dominated by natural elements such as wooded parks, places with scenic views, or the beaches of lakes and oceans. Once individuals are stressed, encounters with natural environments have a restorative influence, whereas, many urban environments will hamper recuperation (Ulrich et al., 1991). Decreases in heart rate and blood pressure, relaxation of muscle tension, and increases in brain alpha waves indicative of relaxation are all typical responses when exposed to natural scenes. These measures are stronger still when people are exposed to scenes containing

water (Ulrich et al., 1991). Parsons (1991) points out that another potential influence of natural environmental perception on human health includes an increase in immune system functioning that occurs when stress levels remain low.

Nature: Emotional, Cognitive, and Spiritual Responses

While suggesting clear associations between experiences with natural settings, physiology, and stress reduction, the nature connection appears also to go beyond these to include shifts in a broad range of emotional and cognitive states (Herzog & Bosley, 1992; Tennessen & Cimprich, 1995; Ulrich, 1993). Nature seems to have a positive effect on a cluster of emotions, including friendliness, playfulness, elation, and affection (Ulrich, 1979; Coley, Solomon & Shafto, 2002). For example, Sheets and Manzer (1991) report positive emotional attachments rising in direct correlation to the amount of vegetation present in a view. Hull and Harvey (1989) found that when fatigued and pressured, feelings of pleasure, comfort, and satisfaction rise in proportion to the number of trees within view. Ulrich (1979) and Hartig, Mang and Evans (1991) report reductions in anxiety, fear, anger, and aggression when viewing nature scenes, and feelings of tranquility and serenity as common reactions to open spaces, lush vegetation, and large trees.

Research has also explicitly demonstrated that nature can evoke important cognitive responses. Kaplan and Talbot (1983) found that when people have difficulty concentrating or find mental work unusually effortful, an experience with nature can provide a feeling of escape. The experience provides opportunities to be interested in something else and removes the demands on one's behavior that are imposed by humans. This lessens irritability, increases awareness of one's own thoughts and feelings, and enhances self-confidence.

Ulrich (1993) cites research which indicates that nature experiences stimulate intellectual activity by increasing curiosity and enhancing creativity. In addition, increased abilities to problem solve can result from contact with nature. The "relaxed attentional state produced by nature may facilitate a more creative, less stereotyped pattern of thought...and could offer advantages...through better problem solving" (Katcher & Wilkins, 1993, p.).

It seems clear that certain aspects of nature can elicit powerful emotional and cognitive responses. Only recently, however, have scholars and researchers begun to systematically look at those feelings of awe, mystery, excitement, and spiritual transcendence that are typical reactions to experiences with natural places. Kellert (1993) and many others, such as Besthorn (2000; 2001) and Besthorn and Canda (2002) go beyond conventional emotional responses and emphasize deep metaphysical and spiritual attachments that human beings often form with the natural world. A certain plant, a nearby forest, or any favorite location can evoke feelings of familiarity, intimacy, and transcendence. Even ordinary and unspectacular nature can assume a deep meaning if encountered as a daily part of life. Human kind often comes to deeply, passionately, and spiritually "depend on trusted and familiar places" (Kellert, 1997, p. 185). Destruction of these well-known landscapes can produce feelings of profound loss, despair, and even grief (Kellert, 1997). The intimacy people feel with nature fulfills social and transcendent needs for relationship and can provide "the emotional strength to confront life's vicissitudes" (Kellert, 1997, p. 110).

Animals: Physiological and Emotional Well-being

While direct experiences with natural landscapes contribute to stress reduction and a wide range of physiological, emotional, cognitive, and spiritual benefits, it is humankind's deep-seated affinity with animals that offers the most convincing expression of biophilia. For millennia, animals have shared our land, air, and water. They have been essential to our physical survival and the source of intense personal friendships and affection. They suffered with us, died for us, inspired our daily tedium, animated our stories of creation, and have been singly most important, well ahead of our connection to the natural world around us (Hogan, Metzger & Peterson, 1998). Kellert (1997) asserts that animals "represent the most common focus of bonding to the non-human world" (p. 94). So long standing and resonant are our bonds to animals that we have a tendency to consider animals as kin (Katcher & Wilkins, 1993).

Contact with animals promotes physiological health and emotional well being (Kahn, 1997). Adults are more likely to be approached when they are accompanied by an animal, thereby, increasing the likelihood of social interaction among people (Katcher & Wilkins, 1993). Numerous studies show a strong correlation between the tactile comfort and companionship provided by pets and better health and life expectancy. People have a need to feel accepted, respected, and cherished. Animals fill that requirement by providing us with uncritical attention, devotion, and a sense of being valued and wanted (Kellert, 1997). They can evoke a sense of belonging that has an impact on our ability to cope and can provide "an antidote to isolation and aloneness" (Kellert, 1997, p. 107). Friedmann, Katcher, Lynch & Thomas, (1980) and Friedmann and Thomas (1995) have found that patients with heart disease have better survival rates if they are pet owners. Affiliation with pets has lessened feelings of isolation, uncertainty, and loneliness and has thus reduced physiological arousal and the likelihood of ongoing cardiac distress.

Pet ownership among elderly people has been shown to decrease visits to doctor's offices (Siegel, 1990) and increase positive measures of mental health. Katcher and Wilkins (1993) cite dozens of studies showing the beneficial effects of resident animals on institutionalized elderly suffering with chronic brain syndrome. Patients who were previously unresponsive focus their attention on animals and interact with them. Residents begin smiling, laughing, and talking to the animals and the volunteers who accompany them. Over the long-term, these patients are less hostile to their caregivers and generally more socially communicable (Kahn, 1997). Kahn observed, that people:

"...are happier and live longer in the regular presence of animals... There is calming among the bereaved, quicker rehabilitation by alcoholics, improved self-esteem among the elderly, increased longevity by cardiac and cancer patients, improved emotional states among disturbed children... more cheer among the mental and physically handicapped...and general facilitation of social relationships. (p. 9)

SOCIAL WORK VALUES AND PRACTICE IN A BIOPHILIC CONTEXT

Social work has always had an ambivalent understanding of its relationship to the natural world. The profession has consistently claimed for itself an ecological

awareness. Our person/environment, ecological, systems, and eco-systems models of practice have centered the profession's collective attention on the link between the individual and his or her unique surroundings (Besthorn, 2002; Besthorn & Canda, 2002; Besthorn & McMillen, 2002). They have served as helpful guides to our intervention strategies and our understanding of the human condition (Germain & Gitterman, 1996). Indeed, few social workers would allege that their professional orientation is not guided, if only peripherally, by some form of environmental or ecological consciousness. Yet, with few exceptions, for all their descriptive and explanatory power, social work's conventional environmental models have shown an almost complete disregard for integrating a comprehensive understanding of the connection between person and the natural environment and the way we derive individual and collective meaning from this association (Bartlett, 2000; Besthorn, 2000, 2002; Coates, 2000; Hoff & McNutt, 1994; Hoff, 1998; Kahn & Scher, 2002; Rogge, 1994). With few exceptions, social work does not generally recognize the connection between person and nature or inquire into it, develop theory around it, or place it in its computations of what is important to those the profession serves (NASW, 2000; Besthorn, 2001; 2002). Nature has tended to become the benign backdrop for more fundamentally important personal or social interactions. When it comes to nature, social work's diffidence also may be a part of a general reluctance to venture too deeply into the biological sphere, believing it to be the domain of other disciplines and professions (Saleebey, 1992; 2001; 2002).

Yet, scant justification remains for a continuation of this epistemological myopia. Indeed, as has been suggested, experiencing nature and finding intense connections with animals enriches people's lives in ways never before understood. Nature in all its forms is a critical ingredient for healthy development and realization of full human potential. It is certainly essential to survival. While many scholars believe that expressions of biophilia represent, as with most complex phenomena, weak biological tendencies clearly "shaped by the mediating influence of learning, culture and experience" (Kellert, 1997, p. 4), it is, nonetheless, clear that natural affiliations, operating through as well as expressing our biophilic propensity, represent a vast accumulation of resources critical to the way social work understands and responds to the physical, psychological, social, and spiritual development and well-being of the clients we serve.

Core Values: Dignity and Justice

The Biophilia Hypothesis and the multiple manifestations we see of it in contemporary life are compatible with the core values and concerns of social work. Like social work, biophilia theory recognizes the intrinsic worth and dignity of all human beings inasmuch as biophilia respects the significance and integrity of all beings in the biospheric community. Biophilia acknowledges the complex interrelationship of life. This means that all living organisms, not just a select few, have inherent value and this value is created and sustained in the context of deep relationship. Each of us is dependent on all others in this immense planetary ecosystem we call Earth. We are interrelated to such an extent that the lessening of one member of this system is ultimately the diminishment of all. The dignity of individuals and the well being of society are tied fundamentally to the dignity that eco-

logical and social justices are intimately intertwined. Severed, fractured, and unjust human relationships threaten and diminish the existence of nature. One need only look as far as the incalculable damage done to the natural world as a result of civil strife and international conflict. Biophilia is very much about dignified, just, supportive interrelationships built upon integrity and mutual respect and, in this sense, it fits impeccably with the core values of social work.

Following the principles of biophilia, humans have developed biological preferences for nature beyond the basics of physical survival because nature has enhanced their ability to survive emotionally and spiritually as well as physically. Humans need nature not just to sustain life, but to enrich and enhance it (Besthorn, 2001; Hoff & McNutt, 1994). Having little or no access to vital, healthy, natural areas and animal encounters decreases the value of the human experience. Thus, people who are denied the availability of rich, healthy environments and intimate nature experiences are denied the dignity of having full access to resources critical to their healthy development. This is likely to be the case for most if destruction of the environment and loss of bio-diversity continues at its present rate. Currently, the impact of environmental degradation falls most heavily on people of color, those living in poverty, or those otherwise socially or politically disenfranchised.

Not only are the poor and marginalized more likely to reside in settings devoid of healthy nature, they are also more likely to be victims of environmental destruction due to industrial exploitation of land and resources. Large industries that cause pollution and community disruption are not likely to be placed in affluent neighborhoods populated mostly by people who are white and prosperous (Bullard, 1993). Corporate interests have shown little hesitancy to locating these enterprises in poor neighborhoods where a few, often individuals of color, are forced to bear the burdens of industrial processes and residual waste from which the majority benefits.

Industrialization, pollution, poverty, oppression, and environmentalism are all inexorably linked (Besthorn & McMillen, 2002). In recent reviews, Boerner and Lambert (1995), Stephens (1996), and others have found clear patterns showing that communities with greater minority populations are more likely to be the sites of heavy industry and commercial hazardous waste facilities. These investigations have also discovered that significant disparities exist in the fines levied against polluters in white communities and those in minority areas. It was also found that the Environmental Protection Agency took longer to clean up waste sites in poor and minority communities than in affluent areas. Not only are the hazardous waste sites noxious and potentially very dangerous, but social ills in the form of increased vandalism, crime, and drug use tend to follow placement of these sites in or near communities. At best, this is social and environmental injustice, and at worst, it is the embodiment of environmental racism. It is the denial of equal access to resources in the form of a healthy environment in which to live, and it results in the further marginalization of already disenfranchised people. As such, it is counter to the core values of social work. Social workers should find it unacceptable and consistent with our ethical commitments to political and social action (NASW, 1999) to do everything in our professional ability to bring it to an

end. In a sense, thinking of social justice as the provision and, if necessary, the redistribution of those social resources required to undergird and support adequate human development, those resources should be expanded to include those natural ones that have the same purpose and effect.

Core Values: Community, Diversity, and Inclusion

Whether or not social workers choose to be active in environmental causes, they certainly can no longer choose to be uninformed regarding the impact that degraded environments have on their clients (Rogge & Combs-Orme, in press). When we poison an environment, we jeopardize much more than pretty neighborhoods. We also limit the possibilities for vital, secure, sustainable communities and healthy personal and social development. When communities are burdened with pollution and decay, there is often an erosion of community stability. People feel less pride. They become less secure, more alienated, more uncertain of their futures, and less able to realize their dreams. When we do not respect the worth of the natural environment, we do not respect the worth and dignity of the people who reside in and depend on it. If social work is to continue its focus on poverty, discrimination, oppression, and other forms of social injustice, as well as its emphasis on respect for diversity, it must begin to take a far more active role in the eco-justice/social-justice dialogue.

Small changes can have big results, as an old expression foretells. This is certainly the case when it comes to our place in the natural world. The presence of even minimal experiences with natural settings and/or non-human beings genuinely matters to people. We are more whole when we can draw sustaining energy from our surroundings and our relationships. As Kaplan (1983) observed, "Big trees, and small trees, glistening water, chirping birds, budding bushes, colorful flowers—these are important ingredients in a good life. To have these available only rarely...deprives people of tranquility and of spiritual sustenance." (p. 155) Effective social work practice must recognize the impact that nature, or the lack thereof, has on the life of community. As Gladwell (2000) says, "...an epidemic of [disorder or disorganization] can be reversed, can be tipped, by tinkering with the smallest detail of the environment" (p. 146). Community workers have long recognized that modest changes in the physical appearance of a neighborhood can reap big dividends in terms of increasing the sense of security and involvement of residents. However, the natural environment has never been given much attention in these efforts. Recently, however, a number of community programs have begun to attend to elements of the natural environment. One of the most common developments is the planting and maintaining of a vegetable and flower garden; an oasis, often, in a built environment that has been the victim of official inattention (Delgado, 2000). Hynes (1995), commenting on the salubrious effects of community gardens, says:

At its core, the community garden movement in the late twentieth century is about rebuilding neighborhood community and restoring ecology to the inner city...For the give-and-take of working in gardens attaches gardeners to a particular place through physical and social engagement. Community gardens create relationships between city dwellers and the soil, and instill an ethic of urban environmentalism that neither parks nor

wilderness—which release and free us from the industrial city—can do. Gardens offer a more intimate and local space than the large landscape parks can offer. (p. x, xv-xvi)

Access by all people to the opportunities and resources which can result in a better life is one of the dominant historic themes of effective social work practice. Social workers recognize that these resources and opportunities are not as readily available to or are frequently denied to some members of society. Social workers also understand that for all of its rhetoric to the contrary, modern Western culture tends to value conformity at the expense of diversity and difference. It typically rewards people who have the same tastes, buy the same consumer products, and share the same collective attitudes. Indeed, the economic system could not function without this homogenization of attitudes, ideas, and being. Individuals and groups who appear to be different, have alternative beliefs, or represent diverse cultures and backgrounds often find themselves having to make do with scant resources and far fewer opportunities. While social workers recognize that respect for human diversity is vital to good social work practice, it must also begin to affirm that diversity is also an imperative for nature.

Just as loss of human diversity diminishes the richness and potential of our lives, loss of bio-diversity is equally, if not more, destructive. The dominant social paradigm in the West regards humanity and nature as separate entities. Humans are viewed as not only separate from nature, but above and superior to nature. Biophilia theory, on the other hand, recognizes the inherent inter-relatedness and bio-centric equality of all life forms. Bio-diversity is essential for the survival of the human species and its loss is a threat to the entire eco-system (Suzuki, 1997). Extinctions, species endangerments, and callous acts of resource exploitation are often seen as inconsequential to the global, human community because they do not seem to impact individuals directly. This sense of human identity as separate and independent of others, both human and non-human, is illusionary and self-destructive. It is a fallacy that humans live apart from and are superior to nature. Not all cultures have this view. In fact, "Many Afrocentric, Native American, and Asian worldviews share this sense of inter-relatedness of humans with all elements of the environment...Such a holistic perspective is useful and appropriate for social work with its concern for human behavior in the context of the larger environment." (Shriver, 1998, p. 92)

SOCIAL WORK EDUCATION AND PRACTICE: BIOPHILIC CONNECTIONS

Principles of biophilia can be comfortably incorporated into social work education and practice. They can provide the basis for the development of effectively fashioned means to help people maximize their potential and empower them to achieve control of their lives and the communities in which they live. Focusing on nature in its many forms and expressions has great potential for social work education for practice and for specific practice settings. Let us examine some possibilities.

First, since many elements of the natural environment are implicated in reducing levels of stress, promoting healing, and aiding in problem solving, social work educators should begin to instruct their students regarding the importance of

employing natural elements in interventive settings. The design and sighting of buildings and practice spaces is a logical place to begin. Observations from office windows can include natural views, gardens, or nicely landscaped areas. Flowers and plants can be placed in offices and reception areas. How people respond in a given situation is highly contingent on the immediate ambient environment in which they find themselves (Gallagher, 1993). What the decor reflects or says to the observer, what symbolism and messages are embedded in its structure, and the intimate details of the surroundings can be critical to the character of the work that goes on. Organizational environments denuded of plants, flowers, water—any hint of the natural—may not be the best place to for productive, interpersonal work (Saleebey, 2002). Use of water fountains, small ponds, and aquariums should be increased. Even things as simple as walking outside or sitting in a picturesque or tranquil natural setting while working with clients can have a profound impact on their progress. Mihaly Csikszentmihalyi (1990) talks of the importance of “flow,” a kind of optimal experience in which people feel involved, exhilarated, and unself-conscious doing something that feels important or stimulating. What kinds of experiences do the physical environments of social service agencies, social work schools, residential centers, and hospitals encourage? What do they say about the kinds of experiences clients are going to have? What kinds of expectations for involvement do these environments create?

Second, educating students to discuss with their clients the possibilities of: a) combating depression, b) relieving stress, c) creating more tranquility, and d) renewing energy by attending to and altering the immediate natural environment is no different in some ways than encouraging them to attend to and alter their interpersonal environment in particular ways. A study by Marc Fried (cited in Gallagher, 1993) demonstrated that the quality of life (measured by feelings of satisfaction) for married people was most strongly influenced by a “good” marriage. But the second most important factor was the immediate surroundings, especially the natural environment. Research and teaching in environmental health increasingly attests to the benefits associated with attending to and altering ones physical surroundings. While spotlighting the hazardous effects of toxic chemicals, radiation, and biological agents is an important agenda for social work education, especially in light of the new security realities stemming from 9-11, it must not overshadow attending to environmental experiences that have a positive impact on health and well-being.

Third, this knowledge provides social work students and practitioners with a set of possible scenarios for work with specific populations. In working with the elderly in long-term care facilities, introducing plants and animals (pets brought on visits from the local Humane society, birds in cages, and fish in aquaria, for example), may bring some residents a noticeable increase in interest, awareness, energy, and positive feeling (J. Nolley, Presbyterian Manor, Lawrence, KS, personal communication, 2001). There has also been much work with adults and youth, some who have serious mental and behavioral problems, involving experience and involvement with nature. The results, at least for a period of time, generally tend to support the idea that these experiences can provide some opportunities for self-discovery and a desire to maintain contact with natural environments in the future (Kaplan & Kaplan, 1989).

Community work in specific geographic locales or among specific sub-populations is a reemerging practice domain that can benefit from a biophilic emphasis. Community building that involves restoration and rehabilitation of the proximal natural environment through community gardens, planting of lawns and greenswards, and flower gardens for apartments is a clear case in point. An elderly resident of a public housing community (a development undergoing significant change, much of it stressful and frightening) kept a small flower garden in front of the porch of her apartment. It afforded her and her children respite and renewal. In another example, a program in an urban community in the Midwest put adults and children together to develop projects that can improve the natural settings of the neighborhoods which make up the community. In an urban high school in the same city, youth were given small grants to work on programs that would benefit the school or the surrounding community. The two largest projects involved rehabilitation of a ramshackle neighborhood block and building a garden with a pond in a school courtyard—a place, as one student said, that would be “peaceful, beautiful, and make us proud” (University of Kansas, 2001).

Finally, a professional alliance with biophilic principles and ideas provides social workers with a chance to engage with other professionals and grassroots organizations in meaningful advocacy. Perhaps it is time for the profession to consider assuming a more active role in educating our society about the consequences of our present lifestyle choices. Currently, the rate of habitat destruction outpaces environmental education. Ecological activism is usually seen in terms of saving the whales or hugging trees, because it is often framed in terms of wildlife and wilderness and thus appears to be only about saving the earth and its natural systems. Most people do not make the connection from this framework to saving humanity. Why not also save the people of the earth by saving the earth? Initially, it may seem out of place for social workers to be advocates for the environment. Citizens are comfortable with the traditional role of social workers as advocates for foster children, hospital patients, or the poor, for this is the work of helping people. However, if we accept the notion of the deep biophilic connection between nature and humanity, it also becomes our work to improve the quality of life by improving the environment in which people live. Nothing is more basic to the quality of life than the water we drink or the air we breathe or our ability to enjoy a natural vista on a beautiful day. Social workers need to make a more overt connection between the environment, human survival, and human happiness. It is also true that the most serious depredations of environments occur in poor and inner city places and spaces. If we believe that our mission as a profession includes addressing conditions that oppress and marginalize people, focusing on the diminishment of resources of the natural environment is one of the most important of these conditions.

CONCLUSIONS

Long and vigorously promoted by the profession of social work, an ecosystemic view, oddly enough, often overlooks its very own origins. That is, the idea of ecosystems arose, in part, from the articulation of ways of thinking about animal and plant life and how they interact. Yet, in the social work version of this complex

perspective, it is the natural world and non-sentient being that is overlooked. While we might examine individuals, families, communities, social institutions and organizations, support and interpersonal networks, cultural and ethnic factors under the ecosystemic aegis, we do little to assess and understand the important role of nature in the daily lives of human beings.

The social work profession also has as one of its primary missions the enhancement of human well being. Nature and natural connections, mediated through our biophilic attachments, offer an essential vehicle for human identity formation and a tool for healing, both individually and collectively. However, increasing urbanization and sprawl have diminished vast areas of natural habitat and caused immense declines in biological diversity. Over-development and sprawl has resulted in habitats suffering unsustainable levels of exploitation, thus, accelerating the scale of species endangerment and extinction. At this point we have precious little understanding of how such factors affect the well being and identity of populations of people that the profession typically serve.

The questions now facing us as social workers include: do the prospects of these ecological threats pose a serious threat to the survival of humanity? More immediately, can people experience full lives with material, emotional, and spiritual significance if the natural environment is substantially diminished and degraded? While the answer to the first question is not yet clear, it seems that the unequivocal answer to the second of these questions must be no in light of what we now know about our biophilic connections to the natural world.

No, the extinction of our species does not appear to be imminent, but our quality of life being eroded will only continue to deteriorate without attention and action. Advocating for a rich and rewarding relationship with nature does not imply a desire to return to the pre-industrial past or a pastoral way of life. This is not possible and probably not ultimately desirable. What is desirable, however, is a respect for nature that helps us to live within it, not in spite of it.

As social workers, we need to act in our client's best interests by helping to arrest loss of bio-diversity and habitat destruction. We need to support creating protected areas where development should not be permitted to occur. We must develop educational strategies that support efforts to fight species extinction. We must educate our students and the public regarding the importance of nature to human well being. We will need to find ways to integrate nature into our values, theories, and practices and into our daily lives. We must also develop strategies to assist our communities and neighborhoods incorporate biophilia into our homes, our places of work, and our social interactions and recognize the extent to which our physical health, mental health, and happiness depend on a vital, diverse, bio-rich planet. This means we must alter our attitudes about what constitutes the good life.

When we impoverish the world, we inevitably reduce our potential for individual physical, material, emotional, intellectual, and spiritual growth and well being. In addition, "we diminish the possibilities for...collective development. We achieve our fullest humanity by celebrating our widest and deepest dependence on nature" (Kellert, 1997, p. 205). Understanding the importance of our biophilic

connections to the earth and the role that nature plays in our survival and in assisting a healthy lifestyle empowers social workers and their clients and helps both to achieve their highest potential.

References

- Ball, J.D., & Falk, J. H. (1982). Development of visual preference for natural environments. *Environment and Behavior*, *14*(1), 5-38.
- Bartlett, M. (2000, July). *Teaching social work and environmentalism*. Paper presented at the joint meeting of the International Federation of Social Workers and the International Association of Schools of Social Work. Montreal, Canada.
- Beck, A.M., & Myers, N.M. (1996). Health enhancement and companion animal ownership. *Annual Review of Public Health*, *17*, 247-257.
- Besthorn, F.H. (2000). Toward a deep-ecological social work: Its environmental, spiritual and political dimensions. *The Spirituality and Social Work Forum*, *7*(2), 2-7.
- Besthorn, F.H. (2001). Transpersonal psychology and deep ecological philosophy: Exploring linkages and applications for social work. In E.R. Canda & E.D. Smith (Eds.), *Transpersonal perspectives on spirituality in social work* (pp. 23-44). Binghamton, NY: The Haworth Press.
- Besthorn, F.H. (2002). Radical environmentalism and the ecological self: Rethinking the concept of self-identity for social work practice. *Journal of Progressive Human Services*, *13*(1), 53-72.
- Besthorn, F.H., & Canda, E.R. (2002). Revisioning environment: Deep ecology for education and teaching in social work. *Journal of Teaching in Social Work*, *22*(1/2), 79-102.
- Besthorn, F.H., & McMillen, D.P. (2002). The oppression of women and nature: Ecofeminism as a framework for an expanded ecological social work. *Families in Society: The Journal of Contemporary Human Services*, *83*(3), 221-232.
- Boerner, C., & Lambert, T. (1995). Environmental injustice. *The Public Interest*, *Winter*, 61-82.
- Bullard, R.D., (Ed.). (1993). *Confronting environmental racism: Voices from the grassroots*. Boston: South End Press.
- Coates, J. (2000, July). *From modernism to sustainability: New roles for social work*. Paper presented at the joint meeting of the International Federation of Social Workers and the International Association of Schools of Social Work. Montreal, Canada.
- Coley, J.D., Solomon, G.E., & Shafto, P. (2002). The development of folkbiology: A cognitive science perspective on children's understanding of the biological world. In P.H. Kahn & S.R. Kellert (Eds.), *Children and nature: Psychological, sociocultural, and evolutionary investigations* (65-92). Cambridge, MA: MIT Press.
- Csikszentmihalyi, M. (1990). *Flow*. New York: HarperCollins.
- Eisler, R. (1990). The gaia tradition and the partnership future: An ecofeminist manifesto. In I. Diamond & G. Orenstein (Eds.), *Reweaving the world: The emergence of ecofeminism* (pp. 23-34). San Francisco: Sierra Club Books.
- Friedmann, E., Katcher, A.H., Lynch, J.J., & Thomas, S.E. (1980). Animal companions and one-year survival of patients after discharge from a coronary care unit. *Public Health Reports*, *95*(4), 307-311.
- Friedmann, E., & Thomas, S.E. (1995). Pet ownership, social support, and one-year survival after acute myocardial infarction in the cardiac arrhythmia suppression trial (CAST). *American Journal of Cardiology*, *76*, 1213-1217.
- Frumkin, H. (2001). Beyond toxicity: Human health and the natural environment. *American Journal of Preventive Medicine*, *20*(3), 234-240.
- Gallagher, W. (1993). *The power of place: How our surroundings shape our thoughts, emotions, and actions*. New York: Harper Perennial.
- Germain, C., & Gitterman, A. (1996). *The life model of social work practice: Advances in theory and practice* (2nd ed.). New York: Columbia University Press.

- Gladwell, M. (2000). *The tipping point: How little things can make a big difference*. Boston: Little, Brown, & Company.
- Gold, S.M. (1977). Social benefits of trees in urban environments. *International Journal of Environmental Studies*, 10, 85-90.
- Gould, S.J. (1996). *Full house: The spread of excellence from Plato to Darwin*. New York: Harmony Books.
- Haila, Y., & Levins, R., (1992). *Humanity and nature: Ecology, science, and society*. London: Routledge.
- Hartig, T., Mang, M., & Evans, G. (1991). Restorative effects of natural environment experiences. *Environment and Behavior*, 23(1), 3-26.
- Heerwagen, J.H., & Orians, G.H. (1986). Adaptations to windowlessness: A study of the use of visual decor in windowed and windowless offices. *Environment and Behavior*, 18(5), 623-639.
- Herzog, T.F., & Bosley, P.J. (1992). Tranquility and preference as affective qualities of natural environments. *Journal of Environmental Psychology*, 12, 155-157.
- Hoff, M.D. (Eds.) (1998). *Sustainable community development: Studies in economic, environmental, and cultural revitalization*. Boston: Lewis Publishers.
- Hoff, M.D., & McNutt, J.G. (Eds.) (1994). *The global environmental crisis: Implications for social welfare and social work*. Brookfield, VT: Ashgate Publishing.
- Hull, R.B., & Harvey, A. (1989). Explaining the emotion people experience in suburban parks. *Environment and Behavior*, 21(3), 323-345.
- Hynes, H.P. (1995). *A patch of Eden: America's inner city gardeners*. White River Junction, VT: Chelsea Green.
- Kahn, P.H. (1997). Developmental psychology and the biophilia hypothesis: Children's affiliation with nature. *Developmental Review*, 17, 1-6 1.
- Kahn, P.H., & Kellert, S.R. (Eds.). (2002). *Children and nature: Psychological, sociocultural, and evolutionary investigations*. Cambridge, MA: MIT Press.
- Kahn, M., & Scher, S. (2002). Infusing content on the physical environment into the BSW curriculum. *The Journal of Baccalaureate Social Work*, 7(2), 1-14.
- Kaplan, P. (1973). Some psychological benefits of gardening. *Environment and Behavior*, 5, 145-162.
- Kaplan, R. (1983). The role of nature in the urban context. In I. Altman & J.F. Wohlwill (Eds.), *Behavior and the environment* (pp. 127-161). NY: Plenum Press.
- Kaplan, S., & Talbot, J.F. (1983). Psychological benefits of a wilderness experience. In I. Altman & J.F. Wohlwill (Eds.), *Behavior and the environment* (pp. 163-203). NY: Plenum Press.
- Kaplan, S., & Kaplan, R. (1989). *The experience of nature*. NY: Cambridge University Press.
- Katcher, A., & Wilkins, G. (1993). Dialogue with animals: It's nature and culture. In S.R. Kellert & E.O. Wilson (Eds.), *The biophilia hypothesis* (pp. 173-197). Washington, D.C., Island Press.
- Kellert, S. R. (1993). The biological basis for human values of nature. In S.R. Kellert & E.O. Wilson (Eds.), *The biophilia hypothesis* (pp. 42-69). Washington, D.C.: Island Press.
- Kellert, S.R. (1997). *Kinship to mastery: Biophilia in human evolution and development*. Washington, D.C.: Island Press.
- Knopf, R.C. (1983). Recreational needs and behavior in natural settings. In I. Altman & J.F. Wohlwill (Eds.), *Behavior and the natural environment* (pp. 205-240). NY: Plenum Press.
- National Association of Social Workers. (1999). *Code of Ethics of the National Association of Social Workers*. Washington, D.C.: NASW Press.
- National Association of Social Workers. (2000). Environmental policy. In National Association of Social Workers, *NASW speaks: NASW policy statements, 5th Ed*. Washington, D.C.: NASW Press.
- Newell, P.B. (1997). A cross-cultural examination of favorite places. *Environment and Behavior*, 29(4), 495-515.
- Orr, D.W. (1993). Love it or lose it: The coming biophilia revolution. In S.R. Kellert & E.W. Wilson (Eds.), *The biophilia hypothesis* (415-455). Washington, D.C.: Island Press.

- Parsons, R. (1991). The potential influences of environmental perception on human health. *Journal of Environmental Psychology, 11*, 1-23.
- Perlman, M. (1994). *The power of trees: The reforestation of the soul*. Dallas: Spring Publications.
- Rogge, M.E. (1994). Environmental injustice: Social welfare and toxic waste. In M.D. Hoff and J.G. McNutt (Eds.), *The global environmental crisis: Implications for social welfare and social work* (pp. 53-74). Aldershot, England: Ashgate/Avebury Books.
- Rogge, M.E., & Combs-Orme, T. (In press). Protecting children from chemical exposure: Social work and U. S. social welfare policy. *Social Work*.
- Saleebey, D. (1992). Biology's challenge to social work: Embodying the person-in-environment perspective. *Social Work, 37*(2), 112-117.
- Saleebey, D. (2001). *Human behavior in the social environment*. New York: Columbia University Press.
- Saleebey, D. (2002). *The power of place: Another look at the environment*. Unpublished manuscript.
- Shafer, E.L., & Tooby, M. (1973). Landscape preferences: An international replication. *Journal of Leisure Research, 5*, 60-65.
- Sheets, V.L., & Manzer, C.D. (1991). Affect, cognition and urban vegetation: Some effects off adding trees along city streets. *Environment and Behavior, 23*(3), 285-304.
- Shriver, J.M. (1998). *Human behavior and the social environment* (2nd ed.). Boston: Allyn and Bacon.
- Siegel, J.M. (1990). Stressful life events and use of physician services among the elderly: The moderating role of pet ownership. *Journal of Personality and Social Psychology, 6*, 1081-1086.
- Smardon, R.C. (1988). Perception and aesthetics of the urban environment: Review of the role of vegetation. *Landscape and Urban Planning, 15*, 85-106.
- Sommer, R., & Summit, J. (1996). Cross-national ranking of tree shape. *Ecological Psychology, 8*(4), 327-341.
- Stephens, S. (1996). Reflections on environmental justice. *Social Justice, 23*(4), 62-86.
- Suzuki, D. (1997). *The sacred balance: Rediscovering our place in nature*. Vancouver: Greystone Books.
- Tennessee, C.M., & Cimprich B. (1995). Views to nature: Affects on attention. *Journal of Environmental Psychology, 15*(1), 77-85.
- Ulrich, R.S. (1979). Visual landscapes and psychological well-being. *Landscape Research, 4*(1), 17-23.
- Ulrich, R.S. (1981). Natural versus urban scenes: Some psycho physiological effects. *Environment and Behavior, 13*(5), 523-556.
- Ulrich, R.S. (1983). Aesthetic and affective response to the natural environment In I. Altman & J.F. Wohlwill, (Eds.), *Behavior and the environment* (pp. 85-125). NY: Plenum Press.
- Ulrich, R.S. (1984). View through a window may influence recovery from surgery. *Science, 224*, 420-421.
- Ulrich, R.S. (1993). Biophilia, biophobia, and natural landscapes. In S.R. Kellert & E.O. Wilson (Eds.), *The biophilia hypothesis* (pp. 73-137). Washington, D.C.: Island Press.
- Ulrich, R.S., Simons, R.F., Losito, B.D., Fiorito, E., Miles, M.A., & Zeison, M. (1991). Stress recovery during exposure to natural and urban environments. *Journal of Environmental Psychology, 11*, 201-230.
- University of Kansas School of Social Welfare (2001). *The teen investment project; the Community Tree Project*. Lawrence, KS: Author
- Verbeek P, & de Waal, F.B. (2002). The primate relationship with nature: Biophilia as a general pattern. In P.H. Kahn & S.R. Kellert (Eds.), *Children and nature: Psychological, sociocultural and evolutionary investigation* (pp. 1-27). Cambridge, MA: MIT Press.
- Wilson, E.O. (1984). *Biophilia: The human bond with other species*. Cambridge: Harvard University Press.
- Wilson, E.O. (1993). Biophilia and the conservation ethic. In S. R. Kellert & E.O. Wilson (Eds.), *The biophilia hypothesis* (pp. 2-41). Washington, D.C.: Island Press.
- Wilson, E.O. (2002). *The future of life*. New York: Alfred A. Knoff.

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