NATURE DISCOVERY CAMP

A CREATIVE PROJECT

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Abstract

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ABSTRACT:

Place-based education and outdoor summer enrichment programs may increase positive interest in nature exploration and foster environmental stewardship in elementary aged children. Research suggests that while children learn about nature and environmental issues in school through science and social studies curricula, they may not receive the type of interaction in the outdoor environment that fosters a life-long desire to explore their local environment or become environmental stewards as adults. This project includes development of a “Nature Discovery Camp” curricula and supporting materials for facilitators. Nature Discovery Camp, a 5 day residential camp, is held for children ages 8-12 and provides environmental experiences that support naturalistic intelligence, social and spiritual development, as well as building upon a child’s natural interest in their surroundings. This project argues for purposeful development of curricula and activities that are designed to cultivate naturalistic intelligence within the children participating in Nature Discovery Camp.
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Chapter 1

Introduction to the Creative Project

The purpose of this creative project is to develop the curriculum guides and supportive materials for Nature Discovery Camp at Camp Shipshewana, Brethren Retreat Center in Shipshewana Indiana. Nature Discovery Camp is a five-day summer enrichment program for children aged 8-12 years. The enrichment camp is conducted by a facilitator and several camp counselors and is supported by a full staff of support personnel who provide lodging, meals, transportation, and lifeguard services.

Setting For Nature Discovery Camp

Camp Shipshewana is located on Lake Shipshewana in Lagrange County, Indiana (Figures 1 and 3). The camp is part of the summer programming at the Brethren Retreat Center (BRC) (Further information available at http://www.brethrenretreat.org/). The first Nature Discovery Camp was held in 2008 and the program has continued each year, making this the ideal time for growth and refinement of the activities in the programming. The curriculum and activities have thus far been informal and evolved over time through formative evaluation, for example journaling was primarily a drawing lesson approach in the first year and has now become a more holistic experience with the addition of writings, poetry and recording observations from nature. The time is now
ideal to develop broader goals and a more formal curricula and activity guide for the
camp based on a newly established Nature Discovery Camp Mission Statement (Figure
2). While the BRC is a Christian based ministry, its vision is to “initiate, promote,
conduct, and host a variety of camp and retreat programs designed to serve youth, adults,
and families in a setting apart from the daily routine of life” (Brethren Retreat Center).
Nature Discovery Camp is one of several unique camp experiences conducted at the
BRC.

![Figure 1: Map of Indiana; Lagrange County Indiana](http://igs.indiana.edu/survey/projects/lagrange/index.cfm)

**Nature Discovery Camp Mission Statement**

Nature Discovery Camp strives to introduce children to the joys and
wonders of their local environment, create respect and appreciation for the
region’s natural resources and provide each participant the inquisitive tools to
safely and confidently grow into an environmental steward in their community.

![Figure 2: Nature Discovery Camp Mission Statement (Creative Project Derived)]
Nature Discovery Camp was first offered at Camp Shipshewana after the Camp Director, Rick Miller, attended the National Christian Camp and Conference Association Annual Conference in 2007 where one of the speakers was Richard Louv, the author of *Last Child in the Woods* (2005). The book is subtitled *Saving Our Children from Nature-Deficit Disorder*, which Louv describes as the growing absence of nature in the lives of today’s young people. Nature Discovery Camp was conceived with little more than a paragraph description and a facilitator was recruited to conduct the camp. Local lakes and forests of northern Indiana are the setting (Figures 3, 4a and 4b). Since the first year, the curriculum and activities have taken shape through formative and summative evaluation by the facilitator and are now ready to be further developed and formalized.

![Figure 3: Lagrange County Map of Lakes](http://www.spea.indiana.edu/clp/Lagrange%20County.jpg)
Northern Indiana Tree Species Prevalent:
American Basswood
American Beech
American Elm
Bitternut Hickory
Black Cherry
Black Locust
Black Oak
Black Walnut
Boxelder
Eastern Cottonwood
Eastern White Pine
Green Ash
Hackberry
Hawthorne
Honey Locust
Ironwood
Pignut Hickory
Pin Oak
Red Elm
Red Maple
Red Mulberry
Red Oak
Sassafras
Shagbark Hickory
Silver Maple
Sugar Maple
Sycamore
White Ash
White Oak
Yellow Poplar

Figure 4a: Tree Species Prevalent in Northern Indiana
Figure 4b: Tree Species Prevalent in Northern Indiana
Each tree icon illustrates the most abundant trees and the number found within each survey unit. Each full tree in the figure corresponds to 2 million trees. Tree species underscore each cluster of trees. The size of each tree is proportional to the number of trees it represents. Tree quantities less than 400,000 are not represented. Each unit has its own suite of trees due to the unit’s general characteristics.
**Creative Project Goals**

The general purpose of this creative project is to provide written curricula guides for the Nature Discovery Camp facilitator and counselors as they prepare and conduct the activities in the camp. Six Activity Guides with supportive materials will be prepared with instructions for the facilitator and written prompts to guide participants through the activities. Learning goals are established for each activity and are complimentary to science and social studies curricula. The activities are place-based and designed to engage the participants cognitively and affectively, leading to expanded naturalistic knowledge of the local environment and naturalistic intelligence (Sobel 2004). Utilization of place-based activities will help the children become more attuned to the local environment and the common features, plants and animals (Kirkland 2007). Children that attend Nature Discovery Camp typically live within a 100-mile range of the camp, so the lakes, forest, grasslands, and wetlands look very similar to their home environment. This is important not only because they will learn about their local ecosystem, but also because it helps develop a sense-of-place and may promote stewardship of their local environments in later years (Sobel 1999, Chawla 2009, Chaterjee 2005). Species they learn to identify at camp will likely be the same in the natural areas near their home or school, and knowing the names of local features and species increases the likelihood that they may become involved in local issues at a later time (Blanchet-Cohen 2009). Each activity will also lead to an evaluative experience that will be left open for the children-participants to explore with reflective writing, drawing or reading during built-in free time.
Whether the camp experience creates environmental stewards or simply sparks further interest in nature for the participants, in general it is intended to be an enjoyable and relaxing summer enrichment activity, while also getting children outside and active, and providing opportunities for socializing with other children. The activities are designed to be hands-on, fun for children and engaging (Tomkins and Tunnicliffe 2007). Hands-on activities in Nature Discovery Camp do not necessarily mean hands only; rather all of the senses, namely hearing, smelling, touching, and even tasting are part of the multi-sensory experiences in some activities such as exploring the grassy areas at the wood’s edge, looking and listening for birds and finding the berries that they may eat. Also sampling the berries is a favorite activity, so much so that the children begin looking closely in the brush for more berries. This is often when they discover the many insects and caterpillars that also live at the wood’s edge.

Some hands on activities involve creating a craft with or of something nature related or participating in a game that demonstrates animal or insect behavior. Each activity as well as nature walks utilizes active participation that engages the children’s mind, body and senses. Frequent stops along a nature walk are made to have children see, smell and collect small things such as leaves or pine cones. Creating a collection encourages each child to become fully engaged and give his/her full attention to the experience. Having such a collection and crafts made at camp that can be taken home are important in helping to create lasting memories that reinforce the positive experiences from camp.

The ultimate success of Nature Discovery Camp in meeting the mission statement’s goals will be measured as the participants return to their homes in the region.
and grow into young adults and are beyond the scope of this project. This would as a matter of course take years to study and to date, relatively little research has been conducted to demonstrate the long term influences of nature experiences on life long behaviors (Wells and Lekies 2006). Moving from interest in nature to activism or stewardship occurs over time as one matures and explores many interests. Chawla suggests that children carry the memory of nature with them to adulthood and it “is a place of such full and positive meaning that it justifies their most persistent efforts to protect it” (2006, 76). Talking with the children on nature walks and reading their journal entries and reflective writings during camp and giving them feedback to encourage their imagination and personal development is an important step to help develop not only their interest in nature but the place nature has in their value-system and daily lives. This sets the foundation for a child’s socialization to nature or what Louv refers to as “attachment theory” in how a child connects and places importance on their relationship to nature (Louv 2005, 154).

**Target Group of Children and Families**

The age-range of children that attend the camp is 8-12 years old. Most of the children already have an expressed interest in nature or being outdoors and some participate in outdoor and wilderness activities with their families on a regular basis. The camp offers focused activities with the opportunities to be away from the adult world, what Louv calls “a separate peace” (2005, 7). Camp Shipshewana is free from distractions. No television, media, iPods, or video games which children may have a dependence on are permitted at camp (Clements 2004). Children spend their free time
playing outdoors, reconnecting with nature, which is what Cooper contends may fulfill the inner need for calm (2006, 24).

Participants are housed in dormitories and are assigned to small groups of 4-6 children, each supervised by a camp counselor. Playground and areas for relaxing in a park-like setting are central to the dormitories. The BRC has a sandy beachfront on Lake Shipshewana, a wetland area with cattails and other aquatic vegetation, a trail system, wooded areas, large grassy areas, access to the Pumpkin Vine Trail (a rails-to-trails project) and local streams and canals. Lakes and forests are common ecological systems in northern Indiana and Camp Shipshewana has representative communities of each (Figures 3, 4a and 4b). Canoes, kayaks and lifeguards are available for water activities.

Children generally attend Nature Discovery Camp at BRC from Northern Indiana, Southern Michigan and Western Ohio Brethren Churches or Brethren communities. The parents and families share common goals of social and ecological peace and some embrace pacifist lifestyles, social justice issues and whole-life stewardship. It is common for those who practice whole-life stewardship to have a career that serves others or serves a cause supported by their church community. Whole-life stewardship refers to the ideal of living, working, and supporting with personal deeds and monetarily such a cause. A congruency of work, home, lifestyle, spiritual and social values is common among the Brethren families that attend programs at the BRC.

Brethren are considered one of the three “Peace Church” denominations, including the Anabaptists (Amish and Mennonite) and the Quakers (Society of Friends) (Speicher and Durnbaugh 2002). The children’s family background and BRC creates a unique developmental niche, or social context for the children at Nature Discovery Camp.
(Super and Harkness 1986). The core messages that are related to social justice and peace, including inner peace are salient in the child’s home, church community and Nature Discovery Camp. Environmental Stewardship and Environmental Justice and Environmental Peace are natural extensions and complimentary of these core values of peacebuilding (Wenden 2004).

The children are brought together and attend Nature Discovery Camp for the purpose of exploring nature, gaining knowledge and growing spiritually in an outdoor environment. Rick Miller, the camp director often calls Camp Shipshewana a protected and special environment where growth, learning and spiritual renewal can occur. The change of pace, moving from a hectic life to that of camp at BRC is important for spiritual renewal. The role of parents in selecting this camp experience for their children cannot be understated. A camp experience away from direct parental influence can be a tremendous opportunity for independent spiritual and personal growth as it immerses children in new experiences away from everyday activities such as electronic media and the day’s schedule, often monotonous in summer (American Camp Association). Camp counselors and facilitators become new friends and new authorities in the children’s lives and the activities become part of their new framework for understanding themselves and the world in which they live. Parents often report picking up a “different kid” from the one they dropped off a few days prior, often more confident, responsible, likely to stand up for what is right, and understand the need to protect one another and their environment (American Camp Association).

Surveys of parents in cities such as Houston, Texas where water and air pollution are prevalent and drug abuse is common indicate that environmental education for their
children is equally important to drug education (Kahn 2002). Additionally, parents facilitate their child’s interest in nature not just by sending them to camp, but also by living near wild areas open to exploration, visiting parks, tolerating such things as mud and frogs and acorn collections as well as an occasional pocket full of rocks unloaded in the washing machine (Chawla 2009).

Camp Shipshewana is a special place to many people, and parents and grandparents often send their children to the camp, remembering their childhood experiences over the generations both at BRC and at other camps. BRC will be celebrating its 90th Anniversary in September 2010 with its annual “Family Camp” where parents and their children can experience camp activities together (Brethren Retreat Center). When parents share memories of where their own special place was when they were children, it creates a special bond and a special sense-of-place for the child shared with parents and in some cases grandparents. It is common for parents at drop-off and pick-up to take a walk around the grounds remembering their camp experience with their child. Many of these same parents are likely to have shared a special place in nature from their childhood, relived with their own child. A famous Ed Abbey quote summarizes the concept of the special place that all of us hold: “Every man, every woman, carries in heart and mind the image of the ideal place, the right place, the one true home” (Abbey 1968, 1). The special place may not be a home, but it may be a forest hideout, a tree house, a special stream or path traveled as a child. Whatever it is for each of us, it is important to pass the memory and location of that place on to our children.
Making a special connection to a place, or “friendship with place” may allow children to have a “wider repertoire for having fun and adapting to stress” (Chatterjee 2005, 10). Louv and Chawla recognize that this important transfer of experience and a special place in nature shows the child not just that they are valued but that nature has an important place in their lives (2005, 2006).

This project incorporates activities that are intended to help each child learn about their local environment in an enjoyable setting and develop their natural intelligence. Previous studies in educational theory and interpretive process provided the basis for developing the types of activities. And practical experiences as a teacher and camp facilitator were incorporated into activities in a carefully selected set of activities. The author’s desire is to spur the curiosity and interest of children in such a way that they continue to pursue nature experiences and learning opportunities in their own communities when they return home from Nature Discovery Camp. Creating special memories at Camp Shipshewana occurs naturally and a sense-of-place develops over the course of the week as the children learn about the local environment, gain knowledge and grow spiritually which are complementary goals for the BRC. Camp Shipshewana creates what it calls “distinctive memories that will standout from other memories in life” (Brethren Retreat Center) and for the children of Nature Discovery Camp, those memories will include their connection to the local environment and the special place that they will likely return to again and again (Brethren Retreat Center). Empowering children participants to share what they have learned with fellow campers, their friends and families and eventually become environmental stewards is an indirect goal that is more
difficult to gage as it occurs over the period of time that extends beyond the camp experience.
Chapter 2
Review of Literature

The Need for Child-Centered Environmental Experiences

Richard Louv’s book *Last Child In the Woods* makes the case that today’s children are in need of more time and opportunity to experience nature in their own neighborhoods and local natural areas. Louv (2005) makes reference to research reported in scholarly journals and surveys that have been published in mainstream media. The phenomena of children spending less time in nature is not just an American experience, but also developed countries all around the globe have noted this trend and are beginning to call attention and study it.

A long list of reasons has been cited by multiple authors as to the reason why children are experiencing a decrease in time spent in nature. Among these are increased utilization of technology such as video games, television, computers, Internet and electronic music devices such as the iPod. The Kaiser Family Foundation has just completed a major survey and study of the generation currently aged 8-18 and has dubbed them Generation M2. This generation follows the “Millennials” and has exposure to 7-11 hours of electronic media each day (Rideout, Foehr and Roberts 2010). If the school day is 7-8 hours, these leaves little time for outdoor activities if the child is to eat, sleep, attend to personal hygiene and do homework.
Many families with children today have parents that are both working or are single parents and the day is highly structured with work, school, after-school activities, and organized sports. According to the Bureau of Labor and Statistics, single parent households in 2009 with the parent working ranged from 72-79% depending on the parent being male or female; and families where both parents worked comprised 48.5% of families (US Department of Labor 2010). Parents and their children spend a great deal of time shuttling to and from the many events of their day. While in the car, it is not uncommon for parents to be listening to the radio and the children listing to individual headphones. Unsupervised time and free time to simply play outdoors does not exist in many families. And even if it did exist, the opportunity to explore a natural area has diminished in urban areas (Cooper 2006; Louv 2006). Even backyards no longer have trees capable of holding up a tree house, and if such a tree existed, many cities and neighborhood associations have ordinances or rules against such structures or require a permit to assemble a tree house. Parents contribute to the reduced contract with nature as well, children are supervised and kept within earshot and eyes’ view at all times, tall fences have gone up around the back yards across the neighborhoods to keep the kids in and danger out. The risk of strangers in the neighborhood and crime is at the back of every parent’s mind and allowing a child to wander the neighborhood unsupervised is not the common practice any longer (Cooper 2006; Louv 2006). Structured sports programs such as baseball, football and soccer are frequently the parental version of “playing outdoors” and while exercise, team-building and socialization are important for health of the child, they leave no opportunity for children to create their own leisure time activity and use their imagination as they explore their surroundings. Parents are by all accounts
well meaning as they provide security for their children but the opportunity to spend unstructured and unsupervised time in the outdoors dwindles as a result.

Similar to the idea of overly structured daily schedules in the lives of our children, our society has a tendency to overly structure parks, playgrounds and open spaces in urban areas. City parks are often groomed and have playground equipment that has been deemed “safe” by park and recreation authorities. Community planners have carefully arranged common areas to be free from risk and liability (Louv 2005). Climbing a tree in a public park would not be permitted, for the child’s sake and the tree’s. The experimentation of damming a small creek and discovering by trial and error the results of different methods, materials and techniques would be out-cried as destructive and harmful for the creek. On a personal note, the creek that was dammed up repeatedly by the author (by using such things as clay and sticks in the style of a beaver dam) seems to be just fine, still full of minnows, moss and bugs of all sorts. Today’s new neighborhoods are in the form of subdivisions that have manicured green lawns and ornamental trees. An urban area that is “wild” or “let-go” does not exist without intentional planning and community support (Moore 1984; Ryan 2005). This means that families must travel away from urban areas to find state parks and nature preserves that allow free-play if it is to happen.

**Barriers to Experiencing Nature**

Robin C. Moore of North Carolina is an urban designer that has specialized in child and family environment. He has written extensively about the need for and the benefits of natural play areas for children. Natural spaces in schools, neighborhoods,
parks, common open areas and housing itself should be considered during the planning process. It is the “lack of safe access to wild or semiwild nature” that he predicts “does not bode well in terms of inspiring and motivating a coming generation of environmental stewards” (Heerwagan et al. 2008, 196). Too often, the spaces are not available in urban areas and when they are, they may not suit a child’s preferences for unstructured and imaginary play (Freeman 1995). The indoor space has also been designed for our comfort and modern societal needs. In his article “We are all outdoor animals,” architect Nick Baker asserts that “we have a deep hereditary affinity for the natural world and that … we are increasingly isolated from it” (Baker 2000, 54).

Those who study human interaction with the natural world have brought the terms biophilia and biophobia or ecophobia into use in the last several decades. E.O. Wilson (1986) brought the term biophilia into the mainstream with his book *Biophilia* which asserts that human beings have a natural affinity toward natural things and the natural world itself. Wilson (2003) asserts that while humans man not be hardwired biophiliacs as infants, they certainly posses preferences for certain natural features and that between the ages of 6 and 17, are most likely to acquire the preferences referred to as biophilia. He further explores the disconnect with our biophillic tendencies in his more recent book *The Future of Life* (2003) in which he predicts we are on the verge of a “bottleneck” where large numbers of species will be lost in the coming century due to mankind’s mistreatment and indifference to the natural environment. He also explains that the bottleneck is the result of overpopulation and depletion of finite natural resources. Many, including youth and adults, do not place intrinsic value in nature; instead nature and natural resources are resources to be exploited, not preserved, thus they have extrinsic
value for serving human needs. Simply put, if one does not value nature, there exists no need to experience the natural world. Bioapathy is the apt term to describe this phenomenon.

Terms related to bioapathy, biophobia or ecophobia describe the fear or discomfort with the natural world. E.O. Wilson asserts that “biophobia is acquired by prepared learning” (2003, 141). While there are innate phobias that exist such as fear of spiders, heights, closed-spaces, snakes, etc. the fear of the natural environment does not typically occur without learning or negative experience. Simple unfamiliarity with the natural environment does not typically result in biophobia. Unfamiliarity may trigger one to proceed with caution just as it would as when entering any new environment.

David Sobel defined the word ecophobia as “a fear of ecological problems and the natural world” in his book *Beyond Ecophobia*. He asserts that children and even adults exhibit fears of such things as oil spills and the loss of rainforest. Ecophobia is not a natural response; it is a learned response that occurs after a negative experience, learning about negative consequences or vicariously by watching others panic in a situation. Both children and adults learn via media outlets, nature channels, and school curricula about catastrophes of the natural world. While it is important to learn about these threats to the natural world, these issues should be put into a larger social and geo-political context and children should not be confronted with tragedies before they are able to psychologically and socially deal with the implications. Learning that the actions of others can lead to eventual loss of species or even the destruction of the earth can be frightening for children that do not yet have the ability to effect changes. When a child experiences “a feeling of fear and discomfort” they may keep their distance from nature and fail to see
the possibilities, even “limit their scientific exploration of nature,” and “inhibit a social-emotional affinity for nature” (Hyun 2005, 208). Sobel (2004) promotes the idea that tragedies should not be introduced before 4th grade, or age 9 because the reasons “why” tragedies occur cannot be easily understood, controlled or solved. Premature exposure to environmental catastrophes, man-made or otherwise leads young children to feel fearful and helpless. This leads to anxiety, which can in turn lead to “turning off,” malaise or a feeling of helplessness. This is sometimes referred to as “downshifting,” which is an “emotional and psychological state that makes the individual think he/she cannot overcome a certain fear that was learned by a human social interaction” (Hyun 2005, 209). Whether it is biophobia, ecophobia, or downshifting, none of these emotional responses will lead one to explore the natural environment or feel empowered to take actions that will make a difference at least locally. Hyun asserts that children learn best when they are in “an environment that allows them to feel free and safe to question and explore” (2005, 109).

**Controlled Nature and Virtual Nature Experiences**

As an alternative to outdoor play, many parents and their children have turned to indoor play and virtual nature experiences. Several channels including Animal Planet, National Geographic Channel, and the Discovery Channel have brought nature into the living rooms of millions of families. Virtual nature experiences such as those put on by organizations such as the National Parks have improved support for the areas highlighted, but have decreased support for local areas that receive little or no media exposure (Levi and Kocher 1999). Additionally, programs that offer a complete story of a wild animal’s
life (perhaps a lioness and cubs) in a one-hour program neglect to show or explain that video recording the story may have taken six months. A child that watches programming such as this becomes conditioned to seeing “lots of action” and “up-close” views of nature. Then when the child visits a local nature center, not only are animals sometimes hard to see, but also not much happens as they go about their normal animal life. Local nature experiences (perhaps an encounter with a chipmunk) then become “boring” when compared to the full-color and close-up versions they experience on television.

Television programming alone accounts for 4 hours 29 minutes each day for children aged 8-18 years old (Rideout, Foehr and Roberts 2010). In addition, many children watch programming that does not include any virtual nature. Sponge Bob Square Pants is a manufactured cellulose rectangular sponge and thus does not qualify as “nature.”

Oliver Pergams and Patricia Zaradic have introduced the term “videophilia” which they define as “the new human tendency to focus on sedentary activities involving electronic media,” (Lougheed 2008). Indeed, videophilia in today’s modern society seems to have no boundaries. One needs only to look at the Internet to locate a video of virtually anything imaginable. However, nature programs are no comparison to experiencing nature in person. The complexity of the natural world simply cannot be conveyed through video. You can’t smell through video, you can’t feel the humidity, you can’t touch the plants, and you can’t startle a small creature that looks at you as if to study you before it scurries into the brush. A hike through a natural area engages all of the senses as in figure 5 a-d, smelling the fall air, feeling the light breeze, listening to the insects in the tall grass, watching grasshoppers leap out of your way as you take a step, watching the leaves change color as the sun begins to set and the light fades, holding a
wooly bear caterpillar as it crawls on you and curls up in your palm, and touching the thorns on a Hawthorne tree.

Figure 5 Nature Hike in Prophetstown State Park, Indiana November, 2, 2008; photos by author. (a. Exploring the Trails Through the Restored Prairie) (b. Fall Leaves as the Sun Sets) (c. Wooly Bear Caterpillar) (d. Thorns on a Hawthorne Tree).

A video program simply cannot provide holistic learning experience that spending time outdoors can. Virtual or video nature experiences do not offer the same benefits according to a study that compared the heart rate of test subjects in three settings, one looking through a window into a natural setting, one looking at a comparably sized television monitor and the third looking at a blank wall. The heart rate of the participants looking at the blank wall were similar in range to those watching the televised screen showing a nature image. Participants looking out of the window had significantly lower
heart rates and presumably lower stress levels as indicated by their decreased heart rate (Kahn et al. 2008). The complexity of nature is sometimes described as chaotic and it is this very feature that Kaplan, a prominent psychologist in the field of Environmental Psychology, regards as the aspect of the natural world that allows the mind to effectively “turn off” the daily stressors of life and focus on the intricate details of nature (1995).

Oliver Pergams maintains that “the natural world is just too chaotic for our technology to convey. It’s almost infinite in its complexity, all simulations, to whatever extent, are merely reductions of that.” (Lougheed 439).

**Becoming an Environmental Steward**

One might ask why we need to promote environmental stewardship in young people and the answer is very simple. Today’s children are the leaders of the future and clearly the earth has many environmental problems that will challenge future leaders. The ability of humans to remain on earth depends on the development and implementation of sustainable practices related to utilization of the earth’s natural resources. E.O. Wilson (2002) makes the case for changing our habits and our ways of thinking and reasoning in *The Future of Life*. To accomplish this, the world will need leaders and environmental stewards that are ready to take up the cause. Wilson also asserts that stewardship itself is an intensely felt value that “appears to arise from emotions programmed in the very genes of social behavior” (2002, 132). Hyun (2005) argues that the ecological human brain and cerebral cortex is most open to influence prior to age 10 and that is the opportune time frame to support a child’s biophilia and desire to explore their natural environment. When a supportive “social-emotionally enriched and intellectually congruent structure” is not in
place to encourage biophilia and give access to natural settings during this critical period, nature preservation will suffer the consequences in years to come (2005, 209).

Learning about the natural environment is a life long process, and childhood is the optimum time to begin (Chawla 2009). Countless interviews with adults from around the world including England, Germany, Slovenia, Australia, Canada, El Salvador, Norway, South Africa and the United States have shown that one of the common denominators in whether a child develops the desire to learn about nature and want to protect it for future generations is the introduction of nature into the child’s life at a young age (Chawla 2006). This leads to the question that if a child, or a whole generation of children does not learn about the natural world, will they care for it in the future? And will they develop behaviors that are compatible with sustainable use of natural resources? Louise Chawla contends that the natural world needs to have a positive meaning to a child if they are to later develop into an environmental steward (2006).

In studying children aged 9 to 13, Kals and Itner (2003) developed a measure to gauge environmental identity. The three factors that occurred together were emotional affinity with nature, concern for nature and perceived ability to reduce environmental risks. These factors lead to increased commitment to protect nature in the study group. While environmental identity and commitment to protect nature are frequently associated with adult behavior, Kals and Itner concluded that, “Although the development of an environmental identity is a lifelong process, it has its roots in an early age” (2003, 137). Wells and Lekies (2006) have also studied the process by which children become adult environmentalists. Unlike many studies that focus on interviewing adults that are working in environmental careers and asking them to recall events that brought them to their
interest and career choice, Wells and Lekies surveyed adults in the 112 most populated areas of the United States. Interest in environmental issues and the natural environment was measured using questions regarding adult sensitivities to urban and community forests. Participants in the survey were also asked about childhood environmental experiences. The sample pool was representative of the general population, not just those that work in the environmental field. Childhood experiences in nature do not always lead one to a career in environmental education, stewardship or activism, but may lead to simply having positive sensitivities related to pro-environmental behavior and attitudes toward natural areas (Wells and Lekies 2006). The types of activities described by the participants most likely to have positive environmental attitudes included spending time in nature in wild areas (hiking, camping, hunting) and domesticated natural areas (gardens, parks). The authors note that solitary play in nature, without demands or distractions “may be particularly critical in influencing long-term environmentalism (Wells and Lekies 2006, 15).

**Benefits of Experiencing Nature**

One of the most obvious benefits of experiencing nature is the increase in physical activity. Childhood obesity has been increasing at an alarming rate and while many contributing factors have been identified, a sedentary lifestyle spend indoors is one of the most likely factors for the majority of children (Burdette and Witaker 2006). In testimony to the Natural Resources Subcommittee of National Parks, Forests and Public Lands American Academy of Pediatrics (AAP) recognized that children have decreased opportunities for outdoor play. AAP also recognized developmental benefits of play on
imagination, dexterity, physical health, emotional health, cognitive skills, resiliency skills, problems solving and self-advocacy skills. Reduced physical play time and increased sedentary time has a direct impact on the rate of childhood obesity. Further, the AAP recognized that play in nature offers “self-directed physical activity that can help promote physical health and reduce obesity.” The AAP followed with several recommendations, two of which involve the outdoors: support the development of “safe-spaces” in “under resourced” neighborhoods and support the reduction of environmental barriers to an active lifestyle (Ginsburg 2006). This includes such measures as creating and maintaining public lands to for use, supporting local initiatives, creating local coalitions that support local play grounds and public areas and socially enriching community common areas where children can play (Ginsburg 2006; Burdette and Witaker 2006).

Urban areas offer great challenge to children and their parents when it comes to spending time in nature. Large cities and housing complexes often have little or no natural areas for children to play in. Yet minimal placement of natural features such as trees can offer benefits. Girls in one inner-city neighborhood were found to exhibit improved self-discipline, inhibition of initial behavioral impulses and delay of gratification if their home view included a “green” view with trees vs. an urban street view (Taylor, Kuo and Sullivan 2001). The three behaviors noted in the study are specific actions that can lead to academic underachievement, juvenile delinquency and teenage pregnancy. While the same was not true for the boys in the neighborhood, Taylor notes that this is likely to be the result of boys playing outdoors more than girls and seeking out green areas or at least seeing them on a more routine basis.
Other psychological benefits are linked to a sense of calm and peace when in nature. Stress reduction is one of the primary benefits touted by adults that seek time in nature. Nature can not only alleviate or mitigate stress in one's life, but prevent it as well (Kaplan 1995). In fact, the richer or more biodiverse the environment even when it is ambient or unrecognized as such by a greenspace user, the greater the psychological benefits (Fuller et al. 2007). Psychological benefits even cross over into physical benefits with the mind-body connection. Physical indicators such as blood pressure return to normal more quickly in a natural vs. urban environment, supporting the restorative properties of nature (Hartig et al. 2003). Although the study measured responses of adults, one could argue that a similar mind-body effect would occur in people of all ages. Children under a great deal of stress, living in rural areas were found to experience less stress when they had regular views of green plants, an open vista and natural play areas (Wells and Evans 2003). Behavior of children with such conditions as ADD and autism as they spend time in nature has been shown to provide a calming effect (Louv 2005).

Several studies have even linked time spent in nature with reduction of symptoms for children with Attention Deficit Disorder (ADD). Parents of children with ADD will often describe activities that calm or help focus their child as those that have an outdoors or physically active component. Attention Restoration Theory suggests that spending time in nature allows the child’s involuntary attention span to become active, and the voluntary attention to “rest” for a while (Taylor, Kuo and Sullivan 2001). This allows the child to have better control over the voluntary (or directed) attention required for structured activities such as schoolwork. Louv (2005) that most of the studies that have studied the benefits of spending time in nature for children have been focused on children
with conditions such as ADD, troubled youth, disabilities, mental health problems or physical ailments; but makes the argument that society should invest more in camps and outdoor education due to its benefits on its restorative power and connection to health. In advocating for a revival of camp experiences, he argues that “connection to health is a more marketable idea than is nostalgia for s’mores and campfires” (Louv 2005, 227).

The mind-body benefits and health benefits extend into the spiritual development realm for many. Adults that spend time in nature and wilderness experiences commonly report spiritual growth and development. Spending time in solitude or with small groups of people in nature is a major pastime for a large population of outdoor enthusiasts. Many of these participants report a personal or primal connection with the earth or becoming “one” with nature. The USDA Forest Service surveyed participants in a variety of outdoor wilderness experiences in an effort to broaden the types of services and experiences offered to citizens. The findings supported the theory that spending time in a natural environment and solitude were important in the spiritual development and sense-of-self in the participants (White 2000). In his article “On the Spiritual Benefits of Wilderness,” Baylor Johnson (2002) identifies six spiritual benefits: the enduring sense of nature; the sublime and awe of natural features; beauty; competence or proving our worth, followed by the calm and quiet spirit; experience of peace and the mental calm that often accompanies it; and self-forgetting that draws us beyond ourselves. Perceiving inspiration when in nature is a very personal experience, and may differ from one person to the next depending on their life stage and personal beliefs. The sense-of-place and spiritual interaction that develops is unique to an individual and becomes part of an individual’s spiritual fabric.
A camp experience in the San Diego school district offers sixth graders the opportunity to spend a week in the mountains and clearly offers benefits for the participants as described by Myra, who reflects on her experience three years after her time in the mountains.

“There I truly felt comfortable, being among few people and walking down paths that weren’t paved. ... Sure the food was bad and the cabins were uncomfortable, but the walks and hikes were interesting and fun. I truly belonged somewhere in the scheme of things ... Sometimes, I feel like I just want to get away from the world, so I dwell in nature through my thoughts and memories.”

Excerpt from Last Child in the Woods (Louv 2005, 221)

Myra clearly developed a sense-of-self and a sense-of-place in her short time spent at the camp in the mountains. While the camp was not designed to specifically develop these characteristics or focused on spiritual development, it provided this participant with a memory helps her during stressful times and provides her a sense of calm and quiet. It is this type of experience that is part of the mission at the BRC and Camp Shipshewana as they seek to offer spiritual growth and development as well as refresh spirits and create distinctive moments in an outdoor setting (Brethren Retreat Center, 2010).
What Types of Experiences and Activities Should Be Included

Modes of learning and learning styles are important to consider when designing curriculum and individual activities. Nature Discovery Camp is a summer enrichment camp, therefore it is not intended to be a structured environmental education experience. Nonetheless, the children will be learning new things and experiencing nature in ways they have may not done previously. Activities should be designed around the basic principles set forth in Chawla (2006, 2009), Kahn and Kellert (2002) and Sobel (1999); namely those principles are to design activities that promote caring for the environment, engage both cognitive and affective participation, and are place-based because these principles have been identified as being most likely to engage the children and develop a life-long learning process about their local environment.

Interpretive principles should be utilized in activities in order to stimulate the child’s imagination and desire to learn more about the topic at hand, (Tilden 1977; Beck and Cable 2002; Knapp 2001). For example, Tilden argues that programs “addressed to children (say up to age twelve) should not be a dilution of the presentation to adults, but should follow a fundamentally different approach” (Tilden 1977, 47). Beck and Cable (2002) go further in their recommendations and provide a list of tips for working with the young (Table 1) and emphasize that children should be active in the interpretive activity with “action and appropriate participation” (2002, 63). And Knapp found that the most effective and enjoyable activities for children were those that used an interpretive activity with tactile and exploratory participation where the subject matter was “firmly imbedded in the experiential activity” (2001, 64).
Table 1: Beck and Cable’s Interpretive Tips for Working With the Very Young

<table>
<thead>
<tr>
<th>Interpretive Tips for Working With the Very Young</th>
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</thead>
<tbody>
<tr>
<td>1. Limit adults to one per child. This more effectively permits adults and children to focus on the program.</td>
</tr>
<tr>
<td>2. Keep the class size small; a maximum of 10, although fewer would be better. Otherwise, it may become too chaotic for an effective program.</td>
</tr>
<tr>
<td>3. Incorporate an element (or several elements) of surprise.</td>
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<tr>
<td>4. Keep the program relatively short and moving rapidly to accommodate short attention spans.</td>
</tr>
<tr>
<td>5. Be sure the area is childproof (safe and nontoxic).</td>
</tr>
<tr>
<td>6. See that each child has an opportunity for direct contact with the interpreter.</td>
</tr>
<tr>
<td>7. Encourage vocalization through the use of songs, rhymes, and animal noises. It isn’t going to be quiet anyway, so channel it into good learning opportunities.</td>
</tr>
<tr>
<td>9. Shed inhibitions, be patient, be creative, be animated, create a sense of adventure, show interest in what the kids are interested in, love the kids, smile!</td>
</tr>
</tbody>
</table>

(Beck and Cable 2002, 63)

The guiding principle for design and selection of activities for this project is first that the activities be place-based and second that they be engaging and appropriate for the age of the child. David Sobel is a proponent of place-based education, especially that which connects children to their local environment. If children are more knowledgeable about their local ecosystem, it is more likely that they will feel empowered to become active to protect it in the future. Too often in school, children learn about far away ecosystems and environmental problems that are beyond their scope and ability to influence or control. Environmental education has evolved from traditional science curriculums that studied plants, animals, ecology and natural processes to encompass what Sobel calls “catastrophe education” which includes everything from global warming to endangered species and extinction (2005). Returning the study of the environment to a local setting and local plants, animals, natural features, culture, and communities can teach the needed principles of the science curriculum. Helping children make a
connection to their local environment begins the process by which they may become agents of change in the future (Blanchet-Cohen 2008). The tone and type of activity should be based on age and developmentally appropriate objectives. The developmental stages described by Sobel (1999) in Table 1 are used to provide developmentally appropriate activities for children. The age range for Nature Discovery Camp is 8-12, so “Exploration” type activities are most appropriate, according to Sobel, especially in the setting of a summer enrichment camp. The children themselves often bring up themes related to “Empathy” as they express concern for a plant or animal on nature walks or during activities, demonstrating their ability to build on their knowledge and understanding of the natural world.

<table>
<thead>
<tr>
<th>Age Range</th>
<th>Appropriate Objectives</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-7</td>
<td>Empathy</td>
<td>Understand animals are living and feel pain; know plants are alive, play in local home areas</td>
</tr>
<tr>
<td>7-11</td>
<td>Exploration</td>
<td>Discover home and school surroundings, follow streams, take care of animals, garden</td>
</tr>
<tr>
<td>12-16</td>
<td>Social Action</td>
<td>Link the environment to their social life, recycling programs, learn ecological cycles, become an advocate for important issues</td>
</tr>
</tbody>
</table>

(Sobel 1999, 11-36)

In addition to Sobel’s Stages of Development, we can add modes of learning, these can be arranged into three general categories: Cognitive (i.e. intellectual, knowledge), Affective (emotional, sense-of-self, sense-of-place), and Evaluative (weighing, considering, what-ifs) (Kahn and Kellert 2002, 120); (Table 3). Nature
Discovery Camp will utilize primarily cognitive and affective modes when introducing new ideas and carrying out activities as children are able to learn and identify names of things at a phenomenal rate and enjoy a sense of adventure and exploration of new territory and ideas (Tilden 1977). Evaluative process will only be utilized when the child expresses that interest. Children need time to think about what they have learned and relate to their values, beliefs and perspectives when the evaluative process is utilized. The activities are generally short and there is not enough time for a child to evaluate what they have learned and offer immediate reflection. Several times are built into the daily schedule for quiet introspection and children are encouraged to write in their journals and talk with their counselors or the facilitator about what they have learned and what questions and thoughts have come to mind. This typically occurs during nature walks where a child seeks out the facilitator for some one on one time and the questions abound.

Table 3: Stephen R. Kellert’s Modes of Learning

<table>
<thead>
<tr>
<th>Modes of Learning and Examples</th>
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<tbody>
<tr>
<td>Cognitive (Intellectual thinking, knowledge, comprehension, application, analysis, synthesis)</td>
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</tr>
<tr>
<td>Affective (Receiving, responding, valuing, organizing, emotional capacities)</td>
<td></td>
</tr>
<tr>
<td>Evaluative (Creation of values beliefs or perspectives, aesthetic, moralistic, scientific, symbolic)</td>
<td>(Kahn and Kellert 2002, 121)</td>
</tr>
</tbody>
</table>

A traveling library of written resources for children in a variety of reading levels is on hand for children that express an interest in learning more about a topic. Tilden
(1977) asserts that children in intermediate grades are often interested in reading and this can be utilized as a resource to expand their knowledge and understanding, thus extending the interpretive lesson. Tilden even argues this point further in stating “the chief aim of interpretation is not instruction but provocation” (1977, 32). Sparking the interest in a child so that they are yearning to learn more about a particular subject is a signal to the interpreter or facilitator that an important connection was made. Reading time is during “free-time”, morning watch or quiet time after lunch.

In “Learning to Love the Natural World Enough to Protect It” and “Growing Up Green: Becoming an Agent of Care for the Natural World,” Louise Chawla writes about the important developmental paths and experiences of childhood that lead one to use formative experiences to direct an interest in the natural world as an adult (2006, 2009). Through countless interviews with adults that have a close affinity with nature, she identified that one of the primary factors that sparked their interest was having a significant adult in their lives, who demonstrated four qualities: “(1) care for the land as a limited resource essential for family identity and well-being, (2) a disapproval of destructive practices, (3) simple pleasure at being out in nature and (4) a fascination with the details of other living things and elements of the earth and sky” (Chawla 2006, 72). Children that have a role model in their life who has a passion for the environment are more likely to be interested in the natural world as an adult. Walking and talking while on a nature walk while exploring the land around their home was frequently mentioned by those interviewed as being a favorite activity. Spending time in nature with family members leads to an increased affinity with nature and can lead to more positive experiences in nature and an increased likelihood of intentions to protect nature (Kals,
Schumacher and Montada 1999) and (Kals and Itner 2003). Merely learning facts about nature is not what leads a child to grow up loving it.

The psychosocial interactions with role models along with the cognitive and appreciative aspects of learning about the natural world all work together to promote pro-environmental behaviors in adulthood. Learning through personal and shared discovery can be exciting and because each child brings a different learning style, background and world-view to camp, the interactions between the children as they begin to teach one another make nature walks (and talks) an even richer experience.

Learning styles should be taken into account so that children with different learning and activity preferences have the opportunity to be fully engaged, Carrier (2009), Hyun (2005) and Wilson (1994). Learning styles incorporated into Nature Discovery Camp activities included visual, auditory, and kinesthetic. Daily nature walks incorporated all of the senses and utilize both silence and talking while walking. Tilden (1977) promotes allowing children to personally examine what they find and encourages the use of all senses in nature. In particular, he notes that children love to smell things, good and bad (Tilden 1977). Kinesthetic learning and being physically active as well as using noise and/or sounds is advocated by Beck and Cable (2002), arguing that children are going to move and make noise anyway, so it may as well be directed and put to use as part of the activity (2002, 63).

While some children have reading as their preferred learning style, it is kept to a minimum, as most activities are hands on and outdoors and on the move. Camp activities keep children busy physically most of the day and opportunity for reading and quiet or settled time occurs several time each day. The age range of 8-12 years-old also makes
selection of reading materials challenging, so provided materials are across a wide range of reading levels and counselors assist children in picking out appropriate reading material when they choose to read during quiet time. Reading short passages together is usually facilitated by one of the counselors.

**Gender Based Preferences**

Gender based studies have indicated that boys and girls have different learning style preferences, with girls preferring linguistic and boys preferring a more active kinesthetic activity (Carrier 2009; Hyun 2005). Many of the activities have both components incorporated so that the group remains engaged; Carrier (2009) argues that both hands on and minds on activities are needed for teaching boys and girls of elementary age learning about the environment.

In “Girls Like Colors, Boys Like Action? Imagery Preferences and Gender,” Rogers (1995) suggests that there are instances when the imagery or materials selected for an activity should be chosen specifically for the preferences of boys vs. girls. One of the activities at Nature Discovery Camp involves trying to identify colored pictures of natural features taken at microscopic and telescopic viewpoints (e.g. surface of a fly’s eye, slime mold, craters on the moon, red spot on Jupiter). The aesthetics of the image are pleasing or “cool” or “pretty” to some children, and “gross” or “disgusting” to others. A balance of images pleasing to both boys and girls was selected to stimulate their interest.
Summary

A summer camp experience such as Nature Discovery Camp can be justified as beneficial in meeting the need for nature experiences because it encompasses many of the characteristics proposed in the literature. Camp Shipshewana offers a sanctuary from daily life, schedules, media and technology. The barriers to experiencing nature are lifted as children experience the natural world first hand. There are no tall fences, no busy streets and parents need not worry about the typical urban dangers. The location and natural features of Camp Shipshewana resemble the children’s own home communities. As they begin learning about the local ecosystem and natural features surrounding them, a sense of place begins to develop. Children have built in free time and are encouraged to explore and choose the activities they want to pursue. The facilitator and counselors are available to provide encouragement and promote the biophilic tendencies already present and growing.
Chapter 3
Selection of Activities and Curriculum

Nature Discovery Camp has been conducted several times since 2008, and the method utilized for preparation of the activities and resources was an iterative process, utilizing formative and evaluative processes. Topics for the activities were chosen based on placed-based resources such as Lake Shipshewana and the Pumpkin Vine Trail and the seasonally available natural resources such as leaves and cattails. The daily schedule of activities and curriculum plans were adjusted based on age and maturity level of the children, available staff and weather.

Each activity was designed around a central environmental learning goal. The topic and activity is first described to the children and then supervised by the facilitator and counselor assistants. Learning styles incorporated into Nature Discovery Camp activities included visual, auditory, and kinesthetic. Craft and activities that produced a take-home model or product were utilized to enhance or reinforce lessons learned in outdoor activities. Daily nature walks were used to reinforce the activities and topics each day. Children tended to seek out the facilitator during nature walks and free time to discuss individual interests, share stories and ask questions. Most children spent 10-15 minutes of one-on-one time with the facilitator each day talking. For younger children
(8-10) this was sufficient; however, older children (11-12) often required longer periods of time and individual lessons (such as journaling).

Each activity was designed to last approximately one hour and culminated with a verbal recollection of the activity. Activities were limited to one hour to prevent boredom and permit inclusion of many different activities. In some cases a craft, collection or journal entry was utilized as a culmination and children were encouraged to take these materials home. The goal was to provide children with both lasting memories and a collection of items to remind them of the Nature Discovery Camp.

The overarching goal of the author-facilitator was to first help the participants have an enjoyable time, and second to instill a sense-of-place and connection to their local environment. The activities were designed to be interpretive in nature, introducing new vocabulary related to plants and animals and names of local species into the activities in such a way that the participants were engaged the activity and unaware that they were learning. At least one activity each day was designed to end on a provocative note, which is to give the child something to think about and spur them to ask questions. For example, in studying the Monarch butterfly and their life cycle, children were asked to consider where the butterflies would go if we no longer had any milkweeds growing along the roadsides. In some cases this lead to further questions about the animals or ecosystem and in other cases it lead to questions about issues related to an environmental issue like pollution. Each child’s question was either answered or materials were provided to the child to encourage them to explore on their own according to their preferences.
**Nature Journaling**

Nature journaling was introduced on the first morning to provide the participants a means of documenting their nature experience. Each day, the date, time, location, weather conditions and sketches or descriptions of the surroundings were recorded. Short focused drawing lessons were given each morning and children were encouraged to draw throughout the day. The journals were used as a tool for the children to begin noticing and documenting the things they see, smell, feel and touch in nature. Activities throughout each day focused on holistic activities that could be recorded in the manner of the child’s choosing. Guides to Indiana wildflowers and trees were incorporated into the journals to help children identify commonly found vegetation. Additionally, children were each provided a folder to keep artwork, coloring pages, worksheets, notes, and leaf collections in.

**Typical Camp Daily Schedule**

- **7:00 AM** Staff Meeting
- **8:00 AM** Wake Up
- **8:30 AM** Breakfast
- **9:15 AM** Morning Watch (Reflective Reading and Writing)
- **9:30 AM** Morning Bible Lesson (Linked to Nature)
- **10:00 AM** Morning Activity 1
- **11:00 AM** Morning Activity 2 (free time built in)
- **12:00 PM** Large Group Activity (Swimming, Games, Boating)
- **12:45 PM** Lunch
- **1:30 PM** Quiet Time in Bunk
Typical Camp Daily Schedule (continued)

2:00 PM  Camp Activity of Choice (Swimming, Archery, Boating, Games, Human Foosball, Gaga Ball, Free Time, Playground)

3:30 PM  Canteen (snack); Unstructured Free Time

4:00 PM  Afternoon Activity 1

5:00 PM  Afternoon Activity 2 (free time built in)

6:30 PM  Supper

7:15 PM  Evening Lesson, Story Time or Reflective Writing Time

7:45 PM  Large Group Activity (Usually a large group game on The Hill)

8:30 PM  Snack

9:00 PM  Nature Walk to Campfire

10:15 PM  Bedtime

Arrival Day (Sunday)

PM Get to know you activities

PM Outdoor Ethics and Rules for Nature Hikes

Supper and Large Group Activities

PM Smokey Bear

Campfire
**Curriculum Day 1 (Monday)**

AM Nature Journaling Lesson One: Smithsonian in your Classroom Adapted Activity

(See Appendix A)

AM Identification of Large and Small Things in Nature

AM Nature Walk to Look and Listen for Birds

AM Free Time

PM Make a Moon Flip Book

PM Nature Journaling Lesson Two; Journaling in Silence

PM Decorate Folders and Journal

PM Free Time

**Curriculum Day 2 (Tuesday)**

AM Nature Walk to Milkweed Patch

AM Nature Journaling Lesson Three: Milkweed Patch (See Appendix A and C)

AM Monarch Butterfly (See Appendix C)

AM Free Time

PM Migration Tag (See Appendix C)

PM Nature Walk to Look for Caterpillars

PM Free Time
Curriculum Day 3 (Wednesday)

AM Nature Journaling Lesson Four: Indiana Wildflowers (See Appendix A)

AM Nature Walk to Look at Wildflowers and Make Leaf Collection (See Appendix D)

AM Free Time

PM Nature Journaling Lesson Five: Leaf Collection (See Appendix D)

PM Red Winged Blackbird (See Appendix E)

PM Insect Safari Part 1 (See Appendix F)

PM Free Time

Curriculum Day 4 (Thursday)

AM Nature Journaling: Reflective Writing About Week

AM Map Making (See Appendix B)

AM Treasure Hunt

PM Nature Walk with Insect Safari Part 2 (See Appendix F)

PM Free Time
Chapter 4

Discussion of Activity Units Included in the Creative Project (Appendices A-G)

**Formatting**

Each unit in the Appendix is introduced with a description explaining the learning goals of the Activity Guide, the activity, its anticipated duration, instructions for the activity and suggested materials where applicable. A location as to where each activity should be conducted on the BRC property is included. Optional activities are included if time permits or children show interest in a topic that can be further explored. Supporting materials such as masters and references for each Activity Guide are provided.

Before beginning a unit, the schedule for the day should be planned so as to accommodate units that link together or progress to a larger topic. Below follows a brief summary of each Activity Guide:

**Activity Guide 1: Nature Journal (Appendix A)**

Nature Journaling is introduced the first morning with a short drawing lesson based on the Smithsonian Museum’s Nature Journaling Lesson. Children are encouraged to draw based on their abilities and write short descriptions of what they see, hear or experience. Each day introduces a new drawing lesson, including butterflies, insects, trees and vegetation, and landscapes. Five journal lessons are provided. Children use
sketching, poetry prompts and writing down what one sees and hears while sitting in silence for twenty minutes are also introduced as a means of recording their time spent in nature. Journals are provided for children to decorate and take home as a lasting memory of their experiences.

Activity Guide 2: Map Making (Appendix B)

Map Making is a unit designed to help the child visualize the camp area and draw or write in key features of importance. Their geographic and spatial knowledge of the area grows over the week, so this unit is a culminating activity conducted on the final day. The child selects the features to place on the map, and how large or small they should be. Areas to include on the sample map provided on the wall for children to reference are: Sleeping area, Kitchen, Beach, Campfire, Woodland Trails, Craft Barn, The Hill (games area), Large Trees, Road, Lakeside Area with Cat-Tails, Milkweed Patch. A legend is introduced with symbols for trees, hills, campfires, and grassy or water areas. Markers or crayons are provided for children to decorate their map. Creativity and recollection of place is emphasized.

Activity Guide 3: Monarch Butterfly (Appendix C)

The Monarch Butterfly unit begins with a discussion of the life cycle of the butterfly from an egg, to larvae, caterpillar, chrysalis, and finally a butterfly. The milkweed plant is introduced as the primary food source and the home for the caterpillar. A nature walk follows to the milkweed patch to see Monarchs feeding and a nature journal entry is made. Children play a Migration Tag game to learn how coloration can
affect survival of Monarchs as they migrate from Mexico to the north. A craft or science-based activity is available based on the age and interest of the participants.

**Activity Guide 4: Tree Identification (Appendix D)**

The Tree Identification unit will focus on 5-7 trees in the camp area that children occupy each day. Children collect the leaves on a nature walk around the camp as they learn ways to identify the tree and its unique features. A leaf collection is made, along with leaf tracings in the nature journal. The tree identification Treasure Hunt is played on the last day as children must recall the names of trees and their location in order to reach the “treasure.”

**Activity Guide 5: Red-winged Blackbird Habitat (Appendix E)**

The Red-winged Blackbird Habitat will focus on the two areas in the camp that are home to the bird. The grassy meadow and the lakeside with cat-tails growing are the frequent home of numerous easy to spot Red-winged Blackbirds. Both males and females are easy to spot. Their call is also easily identified by children. A walk to both of these areas will be followed by a craft activity. A cat-tail is picked for each child to place their blackbird on.

**Activity Guide 6: Insect Safari (Appendix F)**

The Insect Safari unit begins with making pipe cleaner bugs of various sizes and colors. Children are given free reign to make bugs of their choosing, but each must have three body parts and six legs. Wings and antennae are optional on the pipe cleaner models.
The next day, the facilitator places the bugs along the woodland path for the children to find. Some are bright colored and some blend into the undergrowth and are hard to find. This activity culminates with a discussion of coloration and how easy or hard it would be to find a bug to eat.

**Master Copies for Lessons (Appendix G)**

Monarch Butterfly for coloring and corresponding picture for reference.
Chapter 5
Discussion

Some writers today argue that the Baby-Boomer generation was the last generation of Americans to have an intimate relationship to the land and the water (Louv 2005). Children played outdoors from the time school let out until supper time. This simply no longer happens on a frequent basis. Several generations have now grown up with varied exposures to the natural world in an urban setting. In addition, today’s generation of young people are growing into young adults, often never having played in a mud puddle, sand lot, hidden fort, stream, or a tree. A sort of generational amnesia with respect to the natural world is developing. Kahn explains environmental generational amnesia as the phenomena that what we grow up with as children and experience as we mature into adults is what we consider “normal” and if we experience nature as a child, that will be perceived as “normal” (1997). With each generation that passes, children spend less time outdoors and the “normal” is changing. Urban experiences and minimal contact with nature in structured environments is becoming the “normal.”

Children today may watch a television program about nature or read about nature in their science book, but few will get out into nature and experience it in its true wonder. They need more hands-on experience with nature. And multiple surveys have indicated that when given a choice, they prefer outdoor experiences (Simmons 1994; Gambino,
Davis and Rowntree 2009; Report to Natural England 2009). When asked what they prefer, children want unstructured play, forts and hiding places, trails, they want to put their hands on things (Kahn and Kellert 2002; Tompkins and Tunnicliffe 2007), and they prefer nature related activities such as bird watching over team sports and organized games (Simmons 1994) which are the very activities that fill their schedules. The very activities that they prefer and want to spend more time doing are the ones that many experts argue that they need more of and point to naturalistic intelligence (Kahn and Kellert 2002; Louv 2005).

The idea of natural intelligence being one of the innate types of intelligence that humans posses is asserted by many experts (Louv 2005; Kirkland 2007). Howard Gardner’s Theory of Multiple Intelligences asserts that natural intelligence is one of many that humans communicate with, including linguistic, logical or mathematical, musical, bodily or kinesthetic, spatial, interpersonal and intrapersonal (Gardner 2000). Not only are humans born with a sense of biophilia, they are also born with a certain type of intelligence that allows one to perceive differences and likenesses and patterns in nature. Children already have it and it should be developed no differently than math or language skills. In Louv (2005), Leslie Owen Wilson offers a list of descriptors for children that have naturalistic intelligence:

“1. Have keen sensory skills, including sight, sound, smell, taste, and touch.
2. Readily use heightened sensory skills to notice and categorize things from the natural world.
3. Like to be outside, or like outside activities like garden, nature walks, or field trips geared toward observing nature or natural phenomena.”
4. Easily notice patterns from their surroundings – likes, differences, similarities, anomalies.

5. Are interested in and care about animals or plants.

6. Notice things in the environment others often miss.

7. Create, keep or have collections, scrapbooks, logs or journals about natural objects – these may include written observations, pictures or photographs and specimens.

8. Are very interested, from an early age, in television shows, videos, books, or objects from or about nature, science, or animals.

9. Show heightened awareness of and concern for the environment and/or endangered species.

10. Easily learn characteristics, names, categorizations, and data about objects or species found in the natural world.” (Louv 2005, 73).

These ten descriptors are easily recognizable in many of the children that attend Nature Discovery Camp. The activities are designed to build on this intelligence and the natural curiosity of the children that attend.

Teachers in traditional classrooms can provide opportunities for children to do such things as observe and record plants or animals over time, draw or sketch what they see on the playground, write about what they see outdoors in nature, detect patterns and shapes in nature and many other practical activities (Kirkland 2007). What’s missing? Teachers are primarily IN the classroom, not outdoors. The education system is is structured around state standards and simply does not have a place for the type of outdoor
free time in nature that will afford them they type of experiences that stimulate learning about their own local environment.

Thus, scholars suggest that, children have the need, the desire, the capability and the intelligence to pick up where the Baby Boomers have left off so to speak. That is, if they are given the opportunity to do so. Adults are in charge of everything from community planning and the daily schedule of a child. It is the adult behavior that must change. Children need more unstructured time and more access to natural areas near their homes that they can be free to explore (Wells and Lekies 2006). Making natural experiences a priority must start soon if the next generation of children are expected to become environmental stewards and understand the need to preserve the earth for its inhabitants. It is said that a child will not save what it cannot name, and that we will not care for or cherish that which we do not know. The goal of Nature Discovery Camp is to introduce children to their local environment. It is worth repeating the mission statement:

**Nature Discovery Camp Mission Statement**

Nature Discovery Camp strives to introduce children to the joys and wonders of their local environment, create respect and appreciation for the region’s natural resources and provide each participant the inquisitive tools to safely and confidently grow into an environmental steward in their community.

**Figure 2: Nature Discovery Camp Mission Statement** (Creative Project Derived)
Making the link to becoming an environmental steward is the author’s ultimate goal. And designing the Nature Discovery Camp activities was one small step in creating the social fabric needed to encourage a small group of children to begin the journey toward knowing their environment and loving it enough to protect it. Children learn from their environment every day through their interactions with adults, peers, exploring media such as video and Internet resources, and discovery of special places right in their own domain. This occurs even when they are not immersed in nature such as they are at camp. Also, they are known to have the capacity to become agents of change, even at a young age (Blanchet-Cohen 2008). One child who was impacted at Nature Discovery Camp might someday impact his or her local environment and become a steward of the local wetland, or park, or forest. As their confidence improves and they become more aware and mature, “children can take stock of the complexity of environmental issues, relating those issues to their own sense of self, the social environment and even the international arena” (Blanchet-Cohen 2008, 270). Not only is the camp experience and natural world good for child’s health, growth and development as argued earlier, it is good for society. Children are optimistic and have great potential to become a committed and engaged young citizen that cares for the earth enough to protect it when they are given proper support and encouragement.

Nature Discovery Camp as a creative project has been a three year experience. The first year’s curriculum was put together in a matter of a few days, and was consequently not well organized. Activities were very short and mostly used prepared lessons from state park interpretive services and were not place-based. The children were challenging, with a group of mostly girls and several boys that had behavior issues
related to ADD. Going into the second year, themes and larger lessons were utilized, some prepared from outside sources and some based on local resources discovered during the first year. The second year presented a different challenge as the group consisted of children clustered at either end of the age range of 8-12 years old. The younger children struggled with some activities while the older children finished early and became quickly bored with some activities. Retrospectively, the first two years were iterative, figuring out along the way what worked and didn’t work, and what was most interesting to the children. Going into the third year, new activities were needed and some of the old activities needed to be improved upon. Repeat campers from the first two years would not want to do some of the same activities. Being prepared for children with behavior issues and attention difficulties as well as older children wanting something more became apparent. Evaluating past activities to determine what alterations should be made was an essential part of the preparations going into the third year.

Experience gained in the first two years has been beneficial in terms of creating activities with greater purpose that are place-based and engaging for the children. A wider variety of activities and crafts were offered in the third year, appealing to more children. More nature walks and free time were planned, and extra activity pages, word puzzles or coloring pages were prepared for children who finished journaling or working on a craft during time spent in the craft barn or at the picnic tables. A wide variety of choices were selected that appealed to both boys and girls. Children were not given the opportunity to get bored during “sit-down” times, which is something that was a struggle during the first two years. More games and songs were incorporated into the activities along the theme of the lesson, and evening story time was started where a short picture
book was read with themes that related to the natural world. The stories became participatory, with children shouting or stomping with certain cues provided by the reader such as stomping to represent a rock rolling down a cliff. Year three has incorporated many of the recommendations made by the experts in the field of interpretation with respect to children, and follow the guidelines suggested by the experts in the field of environmental psychology as summarized and referred to in the literature review.

The next step for Nature Discovery Camp is to develop a wider selection of Activity Guides and guides that all campers can use for Self-Guided Tours at the BRC. Camp Shipshewana is a special place to many visitors, over 3,000 people visit each year for a 2-7 day stay. Children of all ages, teens, young adults, adults and the elderly visit BRC and often have quiet or reflective time built into their schedule by design. Families visit together during Family Camp, grandparents bring children for GrandCamp and Fising Camp is a traditional father-son camp function.

Having Self-Guided Activities that include a nature walk and some interpretive cues to provoke thoughts or stimulate spiritual development is a goal of both the author and the camp director, Rick Miller. BRC already has a distinctive atmosphere, but developing a sense of place for all of the visitors is desired. Richard Louv asserts that developing a “sense of place is a way of embracing humanity among all of its neighbors” which is a theme of Brethren ministries. Extending the mission statement of Nature Discovery Camp to reach visitors of all ages is the next step.

American Camp Association: Benefits of Camp.


Brethren Retreat Center: Welcome to The Brethren Retreat.


Appendix A

Activity: Nature Journaling (Week-Long Daily Activity)

Description: This activity is designed to introduce children to nature journaling. A drawing lesson is conducted each day and children are encouraged to write in their nature journals on the nature walks and record information about the time and location of their observations.

Learning Goals: Children will be document in words or sketches what they observe in nature.

Duration of Activities: Discussion to introduce topic, 10 minutes; each lesson thereafter will take 15-30 minutes depending on the age of the children. Younger children do not add as much detail as older children.

Instructions: Introduce the topic by showing the children a sample journal. Explain the difference between a journal (record of observations and reflections) and a personal diary (record of events and personal feelings, generally not meant to be shared). Have them write their name on the front and on the inside of the journal. Opportunity to decorate the cover of the journal with stickers or pictures will be given throughout the week.

Lesson One (Drawing): Using the Smithsonian in your Classroom Guide to Nature Journaling, introduce the first lesson using the student handout on pages 7-8. Have several copies of page 7, and cut the birds out, placing them on index cards so they are durable. Each child should have its own card with a bird on it. Have them draw or trace the outline of their bird into their nature journal and then fill in the details. Have them use words to describe the bird and write down 2 facts about the bird from the student handout. Some children may wish to draw more than one bird or label the parts of the bird from the handout. Conclude the lesson by reviewing some of the helpful tips that the naturalists highlighted in the Smithsonian Guide provide.

Lesson Two: After a short nature hike, have the children sit down in the shade at the edge of the meadow and forest. Ask the children to write the time and date at the top of a new page and then have the children make a line down the center of the page. Explain that for this activity they must remain completely quiet. No talking! On one side of the line, have them write all the things they see and on the other side have them write all the things they hear. Point out the things they might not notice right away like the breeze blowing the tree leaves, and how they move and rustle with the wind. Explain that they may hear different birds’ calls coming from different directions and to write “forest” or
Appendix A (continued)

“meadow” next to the birdcall. As different birds call, identify them for the children so that they may begin to notice the variety of birds present. Likely birds will be Red-winged Blackbird, Northern Cardinal, American Crow, American Robin, Cedar Waxwing, Eastern Meadowlark, Killdeer, Canadian Geese, Warblers, Hawks, Woodpeckers and many sparrows. Have them describe the weather by estimating the temperature and humidity, wind and the clouds in the sky. Conclude this lesson by asking the children to write a short poem about the things they think of when they shut their eyes and think about what they have seen and heard and how it made them feel (relaxed, peaceful, happy, excited).

Lesson Three: After a short hike to the patch of milkweed, have the children write the time and date at the top of the page. Have them sketch a milkweed plant and perhaps the insects present. Each child should remove one leaf from a plant and view it closely for the hairs on the surface. Sketch the leaf, showing the veins, hairs and any defects it may have. Have them describe the weather by estimating the temperature, wind and the clouds in the sky. This lesson may be followed by the Monarch butterfly lesson, and they may count the number and types of butterflies or insects present.

Lesson Four: Begin this lesson on Indiana Wildflowers by providing each child with the Indiana Department of Natural Resources Guide to Summer and Fall Wildflowers. Have it printed on single-sided white paper and cut the pages so each colored flower can be glued into their journal. Use markers or crayons to color in the small flower pictures in the guide BEFORE it is glued into the journal. Let it dry for a few hours before heading out for the hike to find the flowers. Dividing into smaller groups and having individual counselors take their group a different direction best accomplish this lesson and hike. When a flower is encountered, ask the children to use their color-coded guide to identify the flower. Be sure you are not looking at an ornamental flower that is out of place! They may pick the flower and a leaf and then sketch both on a new page in the journal, noting the date, time and location. Flowers and leaves may be used for crafts in other activities. If the flower is not in the guide, bring it back to camp and it can be identified using one of the book guides.

Lesson Five: The last lesson is on trees and will involve a leaf collection. Provide each child with a plastic bag to put their leaves in as they hike around the camp and to Horseshoe Acres. Each child should collect between 5-10 leaves and then do leaf rubbings with a pencil or crayon in their journal. Children should label the leaf with its proper name and the time and date. The counselors and facilitator will help the child remember what the name of each tree leaf is. Leaves should be placed at the back of the journal between individual pages so they can be pressed flat overnight.
Appendix A (continued)

Location Recommendation:

- Lesson One: Picnic tables at the camp so that counselors can assist children work best for this introductory activity.
- Lesson Two: Hike through the woods and down the Pumpkin Vine Trail to the grassy area near the field or near Horseshoe Acres and sit in the grass.
- Lesson Three: The milkweed patch is located on the “hills” near the “point” and milkweed is also growing on the opposite side of the road by the canal that runs parallel to the Hemlock stand. There are typically 3-5 Monarchs present at any time. Bumblebees, moths and beetles are also present.
- Lesson Four: Hike along the edge of the woods and road. Sketching the plant at the place where it is found is recommended. If children want to draw in more details, they may do so when they return to camp after the hike.
- Lesson Five: The picnic tables at Horseshoe Acres are recommended.

Optional Activities: Many drawing activities can be prepared using the book *Keeping a Nature Journal* (2003) by Clare Walker Leslie and Charles E. Roth. Individual children have different aptitudes for drawing and some may wish to have more drawing lessons or drawing opportunities during free time.

Materials:

- Plain composition books
- Pencils
- Erasers
- Sharpeners

Recommended Books to Have on Hand:


References:


Indiana Department of Natural Resources. Indiana Department of Natural Resources - Interpretive Links. Indiana Department of Natural Resources. http://www.in.gov/dnr/parklake/ (accessed July 9, 2010).

Appendix B

Activity: Map Making

Description: This activity is designed to introduce children to Map Making.

Learning Goals: Children will be able to create a map of Camp Shipshewana.

Duration of Activities:
- Discussion to introduce topic, 10 minutes;
- Map Construction, 50 minutes

Instructions: Introduce the topic by showing the children a sample map of Camp Shipshewana and some other examples so they can see what types of things they may want to include on their map. This activity works best if it is done near the end of the week so that children have been to each area of the camp several times and will remember what it looks like and what direction it is from the center of camp. Place the sample map and pictures of the different areas of camp on the wall so that children will have something to reference. Encourage the children to color the buildings and locations and sketch pictures of the natural features that remind them of each area.

Introduce the term legend and show some examples that are frequently used on maps such as paths (dotted lines), campfire pit symbols, mountain or hill symbols, water and grass areas colored blue or green, roads (solid lines), bridges (brackets), and encourage the children to include their own legend. They may choose to make up legend items of their own.

Begin with having the children use the ruler to draw in the boundaries of the main camp area. Place the bell and the playground in the center. The buildings and other structures can then be filled in around the center. Each child will place certain importance on the scale and prominence of features around the camp. Drawing a map to scale is optional based on the age and interest level of the children.

Features to include are the two sleeping facilities (boys and girls), the kitchen, the Tabernacle, the canteen, basketball court, human foosball court, gaga ball pit, campfire pits, picnic area, bridges and canals, the “hill” where large group games are played, the craft barn, Horseshoe Acres, Pumpkin Vine Trail, trails through the woods, the beach and lake, wetland area with cattails, milkweed patch, and the “point” where the main entrance is.
Appendix B (continued)

Younger children will need guidance from the counselors and facilitator to help remember what feature is located which direction from the center of the map. Encourage the children to draw in the natural features, plants, insects, etc. that they observed through the week. The map will be a lasting memory of camp that they can hang up at home to remind them of their experiences.

Location Recommendation:
- The Craft Barn

Materials:
- 11 inch x 17 inch Tag Board
- Pencils and Markers
- Rulers

Recommended Books to Have on Hand:


References:


Appendix C

Activity: Monarch Butterfly Life Cycle

Description: This activity is designed to introduce children to the life cycle of butterflies. The Monarch Butterfly can be found on the property feeding on milkweed and other wildflowers. It includes a discussion of caterpillars, preference for milkweeds, Monarch coloration, coloration as a warning for predators and migration of the Monarch to Mexico.

Learning Goals: Children will be able to identify a Monarch butterfly and Milkweed and explain its life cycle.

Duration of Activities:
- Discussion to introduce topic, 10 minutes;
- Nature walk to observe Monarchs, 20 minutes;
- Drawing or coloring a Monarch to match the natural coloration patterns, 30 minutes;
- Migration Tag game with birds and butterflies, 20 minutes;

Optional:
- Using milkweed as a bioindicator for air quality (for children aged 11-12), 10 minutes;
- Craft, making a butterfly and chrysalis (for craft oriented children), 20 minutes;
- Identification of caterpillars using Peterson Caterpillar Guide (if caterpillars are found on walk), 5 minutes each.

Instructions: Introduce the topic by showing the children a picture of a Monarch butterfly and ask them if they recognize it or have seen it before. Describe the life cycle a butterfly from egg to fully developed stage. Show pictures of what each look like or have coloring pages that children can color or refer to as they transfer drawings into their nature journal before going on the walk. Explain how the Monarch prefers the milkweed and that the caterpillars feed on it and store toxins in their body.

When going on the nature walk, ask children to watch for caterpillars on the way but not to touch them or pick them up without assistance. A small plastic box is helpful to keep caterpillars in until they can be identified after the nature walk. Be sure to note what kind of plant the caterpillar is found on as that can be helpful in identifying the caterpillar using the Peterson guide.
Appendix C (continued)

At the milkweed patch, point out the different insects which should include Bumblebees, Japanese Beetles, Small Milkweed Bug and Monarchs. Several other butterfly and moth species are occasionally present. Break the leaf off of a milkweed and show the children why they are called milkweeds. Have the children draw a picture of the milkweed in their nature journals, noting the day and time, and how many different kinds of insects are present. They may wish to draw the insects as well.

A template with an identical photo is available for students to use as a guide in creating their own Monarch. If done on card stock, they can be cut out and made into a giant mobile. Or on paper and shrunk to a 4-inch size, they can be used in the optional craft activity. Children can either sit in the grass at the site to work on the Monarch or move to picnic tables.

Migration Tag Instructions:
The object of Migration Tag is for the butterflies to migrate across a large open area and for the birds to try and tag them (or eat them) before they reach the safe zone. Explain that Monarch butterflies make a bird sick but do not cause them to die. Once a bird eats a Monarch, he probably won’t do so again! Designate a safe area where birds cannot go and butterflies are safe. It should be played in 6 rounds to demonstrate each principle.

A. Round One:
1. Assign 2-3 children to be “it” or the birds. When they tag a butterfly, the butterfly must sit down for the remainder of the round.
2. Assign the remainder of the children to be butterflies. When they are tagged, they must sit down.
3. Have the butterflies migrate across the area to the safe zone.

B. Round Two-Three:
1. Tie orange flagging tape around the waist of half of the children that are butterflies and explain to them that when they are tagged in this round, they are poisonous and will make the bird sick. If they get tagged, the bird or child who is “it” must sit down for the remainder of the round.
2. Explain to the birds that if they eat a poison butterfly, they must sit down and not tag any other butterflies.
3. Have the butterflies migrate across the area to the designated safe zone.
4. Repeat this round one more time and ask the children to explain what is happening to the birds.
Appendix C (continued)

C. Round Four:
1. Tie orange flagging tape around the waist of all of the butterflies and repeat the migration.
2. After the migration, ask the children playing the role of the birds why they can’t seem to stop the migration.

D. Round Five-Six:
1. Introduce the concept of mimicry and explain that some butterflies look like the Monarch but are not poisonous. Select several of the butterflies and write NON-POISONOUS on their orange flagging tape.
2. Explain to the birds that some of the butterflies in this round are not poisonous and they may eat them without getting sick (having to sit down) but they can’t easily detect which ones are safe.
3. Begin the migration again and repeat it once to allow the birds to see if they can pick the safe butterflies out.
4. Summarize the Migration Tag with the children by asking them to explain what the advantages are to both kinds of butterflies.

Location Recommendation: The milkweed patch is located on the “hills” near the “point” and milkweed is also growing on the opposite side of the road by the canal that runs parallel to the Hemlock stand. There are typically 3-5 Monarchs present at any time. Bumblebees, moths and beetles are also present. The closest shaded area to sit at picnic tables are back at camp or up the hill as Horseshoe Acres. The Migration Tag can be played anywhere.

Optional Activities:
1. Milkweed as a bioindicator species. Explain what a bioindicator species is and how milkweeds can be used to detect poor air quality. On the nature walk, have each child collect several milkweed leaves from different sides of the road and different areas around the camp. Place leaves from each area in a different plastic bag and mark it with the location collected using a permanent marker. Upon returning to camp, use a magnifying glass to look at the surface of the leaves. If the air quality has been poor in recent weeks, the leaf will be dryer, may turn slightly yellow and will have black or purple spots or ovals on the upperside of the leaf that are visible with magnification. Ask the children how this might be helpful in determining air quality over a period of time or from year to year.

2. The craft for this unit can be used, as an optional activity is the children are enjoying coloring or art-type activities. Provide the children with several 3-5 inch butterfly templates and have them color in butterfly designs to either match a butterfly from nature or create their own new butterfly. The outline template for the Monarch can be used, or outlines can be made from butterfly pictures in the
available guidebooks. The Swallowtail, Sulphur, Hackberry, Copper, Buckeye and Northern Eyed Brown are butterflies that are commonly seen on the nature walks around Camp Shipshewana. The *Butterfly Book by Stokes (1991)* is an excellent resource with colored pictures for children to reference if they want to create a butterfly to look like one they have seen. If markers are being used, cardstock is recommended for the paper so that the colors do not bleed through to both sides. Some children may also be interested in making their butterfly more realistic by coloring opposite sides of the butterfly wings differently. After the butterfly is finished, it should be glued to a wooden tongue depressor or popsicle stick and left to dry. Cardboard tubes such as those for toilet paper, paper toweling or gift wrapping should be cut so the size of their butterfly. The tube can then be painted to resemble the chrysalis. Children may choose to paint their tube artistically or decoratively or realistically. When finished and glue and paint are dry, the butterfly can be rolled up and placed inside the tube to then “emerge” as a fully developed butterfly.

3. Caterpillar identification and subsequent butterfly identification is very straightforward. A key is located in the front of the Peterson guide that divides caterpillars into three basic categories based on their body type and covering: smooth, smooth with knobs or bumps, smooth with rear horn or tail, smooth with fleshy filaments, slug-like, hairy, hairy with tufts or “pencils,” bristled, branched spines, internal feeders or structure building caterpillars. Once the body type is identified, a description of each in that category is provided as well as its habitat, feeding preference and approximate size. Children enjoy this activity a great deal as they can identify what the caterpillar will grow into. After identifying the caterpillar, it is important to return it to the area of the camp where it was captured within the same day so it does not perish.

**Evaluative Prompts (to be used to encourage critical thinking and application to social or environmental issues):**

1. Ask children to consider what a caterpillar might do if there were none of the “favorite” or preferred food sources available. List some of the reasons that this might happen: a new housing development replaces a forest, the trees or plants all die, or deer come in and eat the plants all to the ground.

2. Ask children to consider what might happen if a new bird comes into the area that is not affected by the Monarch’s poisonous characteristics. If the new bird begins eating all the butterflies, what might happen?
Appendix C (continued)

Materials:
- Discussion and Nature Walk:
  - Nature journals and pencils
- Monarch Coloration Activity:
  - Cardstock or paper printouts, see Appendix G
  - Crayons or markers
- Migration Tag:
  - Orange marking flagging tape (one role for every 10 children)
- Milkweed as a Bioindicator:
  - Plastic bags and permanent markers
  - Magnifying glasses
- Chrysalis Craft:
  - Paper or printouts
  - Crayons or markers
  - Cardboard tubing
  - Paint and brushes
- Caterpillar Identification:
  - *Peterson First Field Guides: Caterpillars* (1998)
  - Plastic box to transport caterpillar in for examination

Recommended Books to Have on Hand:


Appendix C (continued)

References:

Wisconsin Department of Natural Resources. EEK! Teacher Pages-Activity: Milkweed Check-Up Activity for Teachers. Wisconsin Department of Natural Resources. http://www.dnr.state.wi.us/org/caer/ce/EEK/teacher/milkweed.htm (accessed July 9, 2010).


Appendix D

Activity: Tree Identification

Description: This activity is designed to help children identify local trees, what trees are used for and how different trees function as part of a forest. Leaf rubbings will be made in their Nature Journals and the names will be recorded. A Smokey Bear activity is included where forest fires are discussed and fire safety is reviewed. The activity is wrapped up on a following day with a Treasure Hunt, using trees as clues to race to the prize.

Learning Goals: Children will identify 5-7 local trees and list some uses for trees.

Duration of Activities:
• Discussion to introduce topic and give instructions for collecting leaves, 10 minutes;
• Tree Walk and Talk and Collection, 40 minutes;
• Leaf Tracing and Identification, 30 minutes;
• Smokey Bear Activity Sheets, 30 minutes;
• Treasure Hunt, 30 minutes on following day.

Optional for older children:
• Full Leaf Collection and Identification (2 hours)
• Campfire Safety (1 hour)

Instructions: Introduce the topic by showing the children a sample leaf collection and description of the activity. Provide each child with a large plastic bag and write its name on it with a permanent marker. Make sure that children remember to only take one leaf from trees that are approved of by the facilitator or counselor. Small trees will not be collected from. Children should also check the leaf for bugs prior to picking it. Trees to identify in the camp area, starting at the Kitchen and going west are: Sugar Maple, Redbud, Pin Oak, White Oak, Red Maple, Ash, Lilac, White Pine. Other trees on the trails are: Sassafras, Hackberry, Walnut, Sycamore, Honey Locust, Mulberry and Silver Maple. Point out overstory and understory trees on the trails as well as trees that are likely to grow in sandy areas and wet areas. End the walk at Horseshoe Acres and do the leaf rubbings in their nature journal at the picnic tables. Have children identify each leaf on the page where they rub it (see nature journaling instruction). Counselors that are not familiar with common trees may use the Stikky Tree (2005) book on the day before the walk to begin learning the 15 most common trees.
Appendix D (continued)

In a follow-up activity, use the Smokey Bear activity sheets 1-3 to discuss the history of Smokey Bear and some issues related to forests and forest fires. Explain the differences between natural and un-natural fires and what fires are sometimes “good” for.

A. Activity one has a 10 question true-false activity and a field book form to fill in. The area of the United States is “Midwest.” Forest type is “deciduous.” Frequency of natural fires is “rare” and “isolated” and usually caused by lightning. Forest adaptations in the Midwest are not common due to the infrequencies of fire. Effects on the forest without natural fire are overgrowth, decreased biodiversity, and failure of some species to thrive.

B. Activity two has a word find and a recreation survey and may be completed independently while children are finishing the first activity. Ask children to share with the group what activities their family enjoys doing in the forest.

C. Activity three has three case files for children to discuss. The counselor for each group should read the case file and then ask children the prompts. Part B, writing a new “team case file” may be completed as time permits and interest level is expressed.

D. Conclude the Smokey Bear activity with a discussion of safe ways to use campfires and ask children to list some of the rules that will keep them and their friends safe as well as help prevent forest fires.

The day following the Leaf Collection, a Treasure Hunt using the trees identified in the main camp area can be conducted. The “prize” for this activity is the Smokey Bear patches that are available from the US Forest Service office. Approximately 10-12 clues, each leading to the next clue should be placed in the main camp area. Clues should be related to the trees identified the previous days. The clue may involve what the tree leaf looks like, what the tree may be used for, how tall it is, etc. Divide the children up into groups and make it competitive!

Location Recommendation:
- The common area in the camp, the trail to the campfire (sassafras and hackberry), the trail to Horseshoe Acres (Walnut, Sycamore, Honey Locust, Mulberry and Silver Maple.)
- Smokey Bear activity sheets are best completed at the picnic table area by Layman’s Lodge as a fire pit is located there.
- The Treasure Hunt should be conducted in the main camp area.
Appendix D (continued)

Optional Activities: Leaf Collection Booklet, preserving leaves in wax or with waxpaper (children 11-12 years-old); approximately 30 tree species could easily be found in the camp area. Catalpa and Hemlock are on the road by the point.

A short lesson on how to start a fire may be appropriately included in the Smokey Bear activity if the maturity level of the children is appropriate. Ways to safely put out a campfire should be included as well.

Materials:
- Tree Walk, Talk and Collection:
  - Plastic bags and permanent markers
  - Nature journals
  - Tree Identification Guides if needed
- Smokey Bear activity sheets, pencils
- Index cards for Treasure Hunt clues
- Smokey Bear patches

Recommended Books to Have on Hand:


References:


Appendix D (continued)


Appendix E

Activity: Red-winged Blackbird Habitat

Description: This activity is designed to introduce children to the Red-winged Blackbird

Learning Goals: Children will be able to identify

Duration of Activities:
- Discussion to introduce topic, 10 minutes;
- Nature Walk, 40 minutes;
- Craft, 10 minutes;
- Journal Writing and Sketch, 10-20 minutes.

Instructions: Introduce the topic by showing the children a picture of a Red-winged Blackbird and ask them if they recognize it or have seen it before. These are one of the most numerous birds of North America and are easily spotted along roadsides of the Midwest. The red and yellow markings on the male wings are called “epaulets”. They are known for perching on an upright weed or plant stalk and trying to stay upright, even in the wind! The males are very territorial and look very different than the females. Their nest is often hidden near the ground in tall grass or the cattails. Provide a coloring page of a wetland and ask the children where they have seen wetland areas before. Point out the different kinds of cattail on the coloring page. Both kinds of cattail are found along the lakeside so they can compare it when they go on the walk. Explain that the water lilies, arrowhead plants and sedges are too short and flimsy to hold up the bird.

Nature Walk: The best time to see the Red-winged Blackbird is in the morning before 10am and the afternoon after 4pm. The females especially will avoid the mid-day heat. Males may be out in the mid-day protecting their territory. When walking along the lake side, have children observe how males will follow the group along the way until they enter the next territory where the next ones takes over. Children can easily find them in and around the cattails along the lake and in the tall grasses of the meadow. The birds call frequently and children will soon recognize the vocalization. Point out the plants found on their wetland coloring sheet (water lilies, arrowhead plants, sedges, etc.) Other plants present include orange butterfly weed (which is in their Indiana wildflower guide), forget-me-nots, Morning Glories, spiderwort, Nightshade, Mullein, Thistle and wild roses. In the meadow, be sure to point out the stinging nettles! Other birds may be present that children want to know the identity of, if they are not known, the bird guides may be referenced.
Appendix E (continued)

Craft Activity: On folded black cardstock, trace the outline of a Red-winged Blackbird out and have the children cut it out. The epaulets should be traced onto red and yellow cardstock and then glued into place on the wings. The hole near the head/neck should be cut out so that the bird can sit atop a cattail collected from the lake edge. When collecting cattail, be sure to cut one for each child, and make sure it has a stalk remaining on top of the cattail to hold the bird on top.

Journal Activities:
1. Explain what the Red-winged Blackbird uses its strong beak for. The birds return from their winter migration in the spring just as the frogs and toads arrive. Ask children to write down why they think the birds come back at just that time and write about what it would be like to fly a long way and be hungry. Ask children what they think the birds may eat when they live near the wetland or lake, and what they eat when they live in the meadow. Have them make a list of small creatures and insects that might be there.
2. Sketch the male or female Red-winged Blackbird in the meadow and/or by the cattails. Have children note whether they see the male and the female (often hiding) or just the male. Record the date and time. If time permits, they may also wish to sketch some of the vegetation.

Location Recommendation:
- The lakeside wetland area on the east side of the lake and the meadow with tall grass patches near Horseshoe Acres.

Optional Activities:

Materials:
- Pictures of Red-winged Blackbirds (male and female)
- Wetland Coloring Sheet from the Indiana DNR website
- Bird identification books as reference for counselors
- Nature journals and pencils
- Blackbird craft template from Baltimore Woods website
- Black, red and yellow cardstock
- Knife or sharp scissors to cut cattail
Appendix E (continued)

Recommended Books to Have on Hand:


References:


Indiana Department of Natural Resources. DNR Let's Have Fun. DNR Let's Have Fun Links to Coloring Pages. https://secure.in.gov/dnr/kids/5989.htm (accessed July 9, 2010).


Appendix F

Activity: Insect Safari

Description: This activity is designed to introduce children to the insects that live in the outdoors. The children will explore places that insects live and make a list of the ones that are found. The difference between spiders and insects as well as their body parts will be studied and pipe cleaner models will be made.

Learning Goals: Children will be able to identify insect body parts and describe some of the adaptations they have. They will be able to describe some of the places that insects may be found.

Duration of Activities:
- Discussion to introduce topic and go over the posters from eNaturalist, 10 minutes;
- Bug Eyes, 5 minutes;
- Nature Walk, 30 minutes;
- Rotting Log Activity, 15 minutes;
- Water Bugs Activity, 15 minutes (canoe or kayaking);
- Ant Observation, 15 minutes.

Optional:
- Pipecleaner Insect Craft, 30 minutes;
- Pipecleaner Insect Hunt, 30 minutes

Instructions: Introduce the topic by showing the children a picture of a bug and ask them if they recognize it or have seen it before. Explain that bugs and insects and spiders are all different and give some examples. Show the posters of bugs, insects and spiders and the different features some of them have. Show the pictures of an insect eye magnified so they can see the many facets on the surface of the eye. Ask the children to imagine what it must be like to see through that many view points.

Bug Eyes Craft: Provide each child with 6 straws, scissors and a rubber band. Have the child cut the straws in half and then bundle them together, fastening with the rubber band. Have the child look through the straws with one eye closed and the other looking through the straws. Advise them to be careful not to poke their eye with the straws!
Appendix F (continued)

Go on a **nature walk** and keep on the look out for insects. Be sure to explain to the children that they are to observe only and not try to catch or pick up insects. There may be opportunities to touch or nudge an insect with a paintbrush, so as not to injure the insect or risk getting pinched or stung by the insect. NO nudging of bees or wasps will be permitted.

*Insects and Objects to find on Nature Walk:*
- Ant Hills: see how many different kind and colors of ants can be located.
- Feeding at flowers: bees, butterflies, hoverflies
- Galls on leaves: look on the underside of the white oak leaves for wasp galls, and spangle galls
- Aphids on plants: look under the leaves
- Spider webs: ground, air between tree branches, under leaves, funnel webs, orb webs, triangular webs, hammock webs
- Milkweed bugs: in the milkweed patch
- Stink bugs
- Grasshoppers
- Harvestmen
- Cicada
- Japanese Beetles
- June Beetle
- Stag Beetle

*Insects to differentiate on the Nature Walk:*
- Butterfly (wings folded on back at rest) vs. Moths (wings to the side at rest)

Appendix F (continued)

- Damselfly (wings folded on back) vs. Dragonfly (wings to the side)


**Rotting Log Activity**: Explain that rotting logs are nature’s way of recycling old trees into new soil, similar to how their parents may have a compost pile at home. Old logs are home to many insects. On the nature walk through the woods, look under leaves and dried vegetation to located some insects. Locate an old log and have one of the counselors roll it over part way to reveal the world underneath. Insects to look for include beetles, millipedes, earwigs, woodlouse, centipedes, worms, grubs, caterpillars, crickets, silverfish and termites and winged ants. Slugs, snails, fungi (mold, conchs, slime molds and mushrooms), moss, and lichen may also be found on or near the log. Be sure to gently roll the log back where it was found when the children are done looking.

**Ant Observation Activity**: Locate an anthill and settle nearby to observe the activity. Write what is observed in the nature journal, noting the date and time. Record the color and size of the ant compare to a piece of rice (taped to the top of each child’s page) in the journal. Have children observe the following activities and answer the questions:

1. What do ants do when they greet one another?
2. How do ants move their antennae? What do you think they are doing?
3. Did you observe an ant carrying something? What was it? Was it heavy?
4. Do the ants have a trail? Where does it go?
5. Place some food crumbs near the trail and time how long it takes for several ants to gather around it, observe and record their activity.
Appendix F (continued)

**Water Insects Activity:** On the day that the children go out on the canoes or kayaks, provide the children with a laminated guide to some of the insects they may observe on the lake water. The best areas for observation are west of the beach near the water lilies. Have them look for insects that are under the water and swim, insects that seem to walk on the water and insects that live on the plants emerging from the water. Insects to look for include Backswimmers, Boatmen, Water Strider, Mayflies, and water beetles.

**Location Recommendation:**
- The lake, lakeside, forest trail and the meadow

**Optional Activities:**
1. **Pipe Cleaner Insect Craft:** On the first day of insect study or a day when craft time fits in, have the children create insects out of pipe cleaners. Explain that each insect needs three body parts (head, thorax, and abdomen) and six legs. Wings and antennae are optional. Cardstock wings can be made and colored with marker or crayon if desired. Encourage the children to be creative and make their own “new” insects using all different colors of pipe cleaners. Provide a sample of previously made insects so they get the idea. Googly eyes can be added if desired. Each child should make at least two insects. Label each with a small sticker or piece of tape with the child’s name on it.
2. **Pipe Cleaner Insect Safari:** On a subsequent day, hide the insects along the forest and grassy trail for the children to find. Be sure to either record where you hide them or remember! Do not let the children see where you hide them. Explain that they may not talk on the hike and that they need to be very observant to try and locate where the insects are hiding. Go on a hike down the trail and ask the children to count how many they are able to see. Repeat the hike and have the children pick out their two insects, be sure to help the ones that are having difficulty. Conclude the activity with a discussion as to why some of the insects were harder or easier to find. Answers will likely include the location of where the insect was and what color they were. Brightly colored insects will be easy to spot whereas brown, green, or black insects may blend into the background.

**Materials:**
- Paintbrush to nudge insects (no touching!)
- Large magnifying glasses
- Variety of pipe cleaners and scissors for optional craft activity
Appendix F (continued)

Recommended Books to Have on Hand:


References:


Appendix G

Supplemental Monarch Templates

Appendix G (continued)