

ASSESSING THE REHABILITATIVE POTENTIAL OF SCIENCE AND
SUSTAINABILITY EDUCATION IN PRISONS: A STUDY OF THE SUSTAINABLE
PRISONS PROJECT

by
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ABSTRACT

Assessing the Rehabilitative Potential of Science and Sustainability Education in Prisons: A Study of the Sustainable Prisons Project

Sarah E. Clarke

The Sustainable Prisons Project (SPP), a collaboration between the Evergreen State College and the Washington State Department of Corrections, brings extensive community partners together to offer science and sustainability education to incarcerated women and men (offenders) in four correctional facilities in Washington State. Using interviews and surveys of offenders and staff, this exploratory study drew upon a mixed methods analysis to evaluate the effects of the suite of SPP activities on participating offenders. This paper focuses on the qualitative findings from interviews. Rehabilitation programs that are aimed at reducing crime once offenders are released are a major correctional strategy and a part of social sustainability. I examined the extent to which the SPP programs share characteristics with the most effective programs for reducing recidivism and assessed the significance of science and sustainability education in the rehabilitative potential of the SPP. Results suggest that SPP projects share characteristics with successful rehabilitation programs. Science and sustainability education appears to foster an environmental stewardship ethic and influences emotional health, improving the quality of offenders' lives while they are incarcerated and contributing to rehabilitative outcomes.

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CHAPTER 1: INTRODUCTION

As human-induced global climate change and widespread modification of habitat threaten humans and non-humans (Adger et al., 2003; Wake & Vredenburg, 2008), there is a strong need for science education of the public (Moser, 2006). Incarcerated women and men (hereafter offenders), represent a large and underserved audience. Approximately 1 in 100 people in the United States (U.S.) is incarcerated (Pew Center on the States, 2008, p. 7). They live in stressful environments, spending nearly all of their time in their cells or working at menial jobs (Johnson, 1995, p. 75) with little or no physical connection to nature. They represent a population that is in need of science education. In this thesis, I examine the effects of a program that brings scientists and community partners into prisons to educate offenders about sustainability and science.

In the U.S., incarcerated women and men number 2.3 million (Pew Center on the States, 2008, p.7). Ninety-five percent of these offenders will be released from prison at some point (Bureau of Justice Statistics, 2004), equivalent to more than 600,000 individuals released per year, or 1,600 per day from state prisons (MacKenzie, 2006, p. 338). Many will recidivate (be re-incarcerated through repeated relapses into criminal behavior). In 1994, 67.5% of prisoners released in the U.S. were rearrested within 36 months after their release (Langan & Levin, 2002). The public and policy-makers count a reduction in recidivism as the most desired outcome of correctional interventions (MacKenzie, 2006, p. 340).

Correctional institutions use a variety of strategies to reduce crime and recidivism, and the most effective interventions are rehabilitative in nature (MacKenzie, 2006, p. 334). Rehabilitation is intended to produce positive changes in offenders so they will stop committing crimes (MacKenzie 2006, p. 4). The most effective rehabilitation programs are vocational, academic and cognitive behavioral programs (Drake et al., 2009, p. 184; MacKenzie, 2006, p. 334). Vocational programs train and certify offenders in trades to pursue upon their release. Academic programs provide formal adult, basic and secondary education courses. Cognitive behavioral programs focus on individual-level (as opposed to

community-level) changes in thinking, reasoning, empathy, and problem solving (MacKenzie, 2006, p. 338).

Some vocational programs that contain cognitive behavioral elements use plants and animals as part of their strategy. I refer to these programs as prison animal programs (hereafter, PAPs) and horticultural therapy programs (HTPs). They show promise as effective rehabilitative strategies (Britton & Button, 2005; Cushing & Williams, 1995; Fournier et al., 2007; Furst, 2006; Moneymaker & Strimple, 1991). A program that may integrate the positive points of PAPs, HTPs, and successful rehabilitation programs, could bring science and sustainability education to offenders. This type of program would address aspects of sustainability through fostering environmental stewardship and opportunities for offenders that may lead to a change in quality of life and a reduction in recidivism.

The Sustainable Prisons Project (SPP) is a program that brings science and sustainability education to prisons through conservation projects, green collar education and training, and informative sustainable practices (SPP, 2010a). This study is the first to assess the SPP. This study is unique because it evaluates the entire set of SPP projects and uses a mixed methods study, focusing on qualitative data from interviews with offenders (N=25) and prison staff (N=12) and quantitative results of surveys on offender attitudes towards learning about environmental topics and relationships with other offenders (N=174, N=179). The SPP has similarities to PAPs and HTPs, in which studies focused strictly on the behavioral, emotional and recidivism outcomes of similar programs.

The purposes of this paper are: 1) to use the preliminary formal evaluation of the SPP to determine the extent to which its programs share characteristics with the correctional programs that have been documented as being the most effective at reducing crime; and 2) assess the significance of science and sustainability education in SPP's potential effectiveness in supporting rehabilitative and education outcomes. This exploratory study will lead to recommendations for the improvement of the rehabilitative potential of the SPP and indicate directions for future research. This study may be useful for a variety of stakeholders: people in

the corrections industry, taxpayers, offenders, natural scientists, conservation biologists, social scientists, horticultural therapists, PAs practitioners, and those interested in implementing similar projects at other enforced residential institutions.

1.1 The Sustainable Prisons Project

Since 2008, the Sustainable Prisons Project has been implementing science and sustainability education in four prisons in Washington State (Ulrich & Nadkarni, 2009). The SPP's emphasis is on bringing education and research on science, nature, and sustainability to offenders and correctional staff. Some of those activities involve the exposure and involvement of offenders with growing and caring for plants and animals to achieve their goals of reducing the environmental, economic and human costs of prisons (SPP, 2010c). These programs intend to enhance environmental stewardship ethics, teamwork, and the formation and pursuit of educational and career goals (SPP, 2010a).

The project started at a small scale and with a narrow focus. In 2004, The Evergreen State College (TESC) faculty and forest ecologist Dr. Nalini Nadkarni sought a way to reduce the illegal harvesting of mosses in old-growth forests of the Pacific Northwest and simultaneously provide scientific outreach to non-traditional public audiences. Nadkarni sought a population with the time and space necessary to conduct research on growing mosses under controlled conditions (Muir, 2004), and created the idea of working with incarcerated individuals to develop moss horticulture techniques. The Cedar Creek Corrections Center (CCCC) near Littlerock, Washington proved amenable to the idea. The CCCC and Dr. Nadkarni partnered to implement the "Moss-in-Prison" project (Nadkarni, 2006).

The success of this program, indicated by the engagement of offenders, prison staff, and participating scientists, spawned an in-prison lecture series called "Sustainable Futures-Sustainable Lives" and led to experimentation with sustainable living practices such as rainwater catchment and composting at CCCC (Nadkarni, 2006; Ulrich & Nadkarni, 2009). These successes led the Washington

State Department of Corrections (WDOC), starting in 2008, to support TESC in the expansion of pilot activities to include three additional Washington State correctional facilities: Stafford Creek Corrections Center (SCCC), McNeil Island Corrections Center (MICC), and the Washington State Corrections Center for Women (WCCW) (SPP, 2010a). (Table 1).

Table 1
Statistics for the Prisons Participating in SPP

Facility	Location	Sex of offenders	Maximum # beds	Acreage	Custody levels
Cedar Creek Corrections Center (CCCC)	Littlerock, WA	M	500	38	minimum
Washington Corrections Center for Women (WCCW)	Gig Harbor, WA	F	900	75	minimum, medium, and maximum
Stafford Creek Corrections Center (SCCC)	Aberdeen, WA	M	2,000	210	minimum, medium, and maximum
McNeil Island Corrections Center (MICC)	Steilacoom, WA	M	1,260	89	medium and maximum

Washington State Department of Corrections [WDOC] 2010a; WDOC, 2010b; WDOC, 2010c; WDOC, 2010e

The integrated work of the SPP pioneers green-collar education and training, sustainable operations, and scientific research and conservation in prisons (SPP, 2010a). Goals of the SPP include facilitating cost-effective, environmentally sound practices for prison facility operations; educating and training the prison community in science, sustainability and skills for the emerging green economy; and conducting ecological research that links prison staff and offenders with scientists and conservation partners who need help with restoration of endangered species. (SPP, 2010a). The SPP has been directed

mainly towards a science and sustainability lecture series (SSLS); and hands-on, ecological research and conservation (ERC) projects. The SPP has received tremendous interest from the media, including over 50 newspaper, magazine, and blog entries; five scientific journals and resources, and 17 radio, television, and video recordings (SPP, 2010b).

1.2 The Sustainable Prisons Project Evaluation

In 2009, an exploratory study of the effects of the SPP programs was conducted by the professional Portland, Oregon-based evaluation company David Heil & Associates. This preliminary evaluation: a) measured potential changes in offender attitudes about the environment and sustainability; b) gauged interest in environmental issues; c) assessed knowledge gained from projects and lectures; and d) assessed how SPP projects generally influenced the offenders and prison community in general. With the assistance of other graduate students, I carried out additional evaluation activities after SPP's contract with David Heil ended in 2009.

1.3 Scope of Study and Definitions

In this study I chose to focus on a subset of the data that I found was often lost in the tendency of the SPP and media outlets to focus on conservation and money-saving outcomes. I was interested in how the SPP may have influenced prisoners' lives. I used grounded theory (Corbin & Strauss, 2007) to evaluate my qualitative data. Rather than starting out by developing a hypothesis, grounded theory seeks to build the hypothesis from the data (Corbin & Strauss, 2007, p. 1) and analyze the data for concepts or themes. During the interviews I noticed that the SPP seemed to be having many beneficial effects on the offenders. Out of a desire to help the SPP and offenders, I wondered if the SPP had anything in common with successful rehabilitation programs. I noticed that science and sustainability education seemed to influence offenders in several ways. I wanted to understand what those ways were and how they might influence rehabilitation.

To build an understanding of successful rehabilitation programs I drew from literature on correctional strategies, focusing on studies conducted by the Washington State Institute for Public Policy (WSIPP) because their findings inform the Washington State Legislature and affect the WDOC. I also draw from studies that focus on adult in-prison offender populations. The term “offender” is used throughout this paper because it is the preferred term in the WDOC.

Recidivism in Washington State is defined as “any felony offense committed by an offender within 36 months” after their release (Drake et al., 2010). Therefore the lifetime effects of rehabilitation programs are not measured. Washington State has an overall recidivism rate of 50.5% for women and 64.6% for men (State of Washington Sentencing Guidelines Commission, 2005).

I define nature on a systemic, ecological level, which incorporates relationships and interdependencies between and among non-human organisms. I define environment as the natural conditions that surround humans. The terms nature and environment are part of larger discourses and are open to debate. Mainstream discourses about nature and the environment have maintained a separation between humans and the natural world (Cronon, 1995, p. 300) that perpetuates a dynamic where nature and the environment are in need of human control and domination (Cronon, 1995, p. 302). Other views of nature and the environment include humans and social justice, local economic sustainability, health, and community governance (Cronon, 1995, p. 300). I chose the definitions that I did because the SPP and the literature I review views that nature and the environment are separate from humans.

Sustainability is defined differently depending on the cultural and historical context (Redclift, 2005). Many contemporary definitions of sustainability have roots in the Bruntlandt Report, where sustainable development is defined as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (World Commission on Environment and Development, 1987). That definition is a model based on growth, needs for economic and natural resources, and reinforces the idea that nature is a resource in need of management (Redclift, 2005). Some other

definitions of sustainability address the emotional health of humans or social and environmental justice (Redclift, 2005). The SPP emphasizes environmental sustainability such as conservation outcomes. My study blends the three aspects of sustainability listed above with special attention paid to offender rehabilitation, quality of life, and education.

Science and sustainability education refers to informal science education that is intended to increase people's awareness and knowledge of the environment and the challenges it faces. It is also intended in this context to foster "attitudes, motivations, and commitments to make informed decisions and take responsible action" (UNESCO, 1977), one of the most widely recognized definitions of environmental education.

1.4 Overview

I organized this study into five chapters. In Chapter 1, I provide an introduction to rehabilitation, the SPP, definitions and scope of study, and an overview. In Chapter 2, I explore the use and types of crime reduction strategies, discuss the importance of rehabilitation programs and which ones are most effective in reducing criminal behavior. I also review the literature on the rehabilitative significance of prison animal programs (PAPs) and horticultural therapy programs (HTPs), and elaborate on SPP conservation projects.

In Chapter 3, I describe the methods used in the collection and analyses of the data. These data include interviews of offenders and prison staff involved with the SPP; and surveys of offenders participating in the SSLS. In Chapter 4, I report the findings of my qualitative and quantitative analyses. In Chapter 5, I critically examine my results in the context of the literature review on crime reduction and rehabilitation, and PAPs and HTPs in prisons. I address the two purposes of my study, talk about the implications of my study, make program and research recommendations; and suggest sources of funding.

CHAPTER 2: LITERATURE REVIEW

2.1 The Importance of Rehabilitation in Reducing Recidivism

I use two studies of strategy-specific recidivism studies to explore the connections between recidivism rates and rehabilitation programs. Both of these studies use meta-analyses that combine recidivism studies on a variety of programs from around the country (MacKenzie, 2006; Drake et al., 2009). The types of programs used to reduce crime are classified into six categories (MacKenzie, 2006, pp. 4-5):

1. **Incapacitation** deprives the offender of the capacity to commit crimes...through detention...or through capital punishment.
2. **Deterrence** is punishment designed to be so repugnant that neither the offender nor others will commit the crime in the future.
3. **Rehabilitation** is directed toward changing the offender to prevent future criminal behavior of the treated individual.
4. **Community control** or the surveillance and supervision of offenders in the community is an attempt to reduce the delinquent or offender's capacity and/or opportunities for criminal activities.
5. **Structure, discipline, and challenge programs** use physically and/or mentally stressful experiences designed to change offenders in positive ways (rehabilitation) or deter them from later crime.
6. **Other combinations** of rehabilitation and control include increasing surveillance and control, or the structure and discipline, while at the same time providing rehabilitation services. (MacKenzie, 2006, pp. 4-5)

From the early 20th century throughout the 1970s, sentencing and corrections placed the primary emphasis on rehabilitation. During the 1970s, crime control methods with an emphasis on incapacitation, deterrence, and “just deserts” became increasingly popular (Andrews & Bonta, 2003, p. 330; Cushing & Williams, 1995; MacKenzie, 2006, p. 7). There was a sense that “nothing works” when it came to rehabilitation (Martinson, 1974), though this was

ultimately difficult to determine due to the lack of quality studies (Cushing & Williams, 1995; MacKenzie, 2006, p. 56), and because of the lack of programs that more adequately addressed offenders' needs (Gillis et al., 1998). Despite a generally poor view of rehabilitation, and a shift in correctional priorities, rehabilitation remains a significant correctional strategy (McKenzie, 2006, p. 3; Morris & Rothman, 1997, p. ix). Rehabilitation programs fall into following three categories: 1) academic education, 2) vocational education and work programs, and 3) cognitive behavioral therapy (MacKenzie, 2006, pp. 69-112).

1) Academic education programs include formal, adult basic and secondary education; and literacy programs, including high school diploma or GED classes (MacKenzie, 2006, p. 71). Life skills components have been added to some educational programs, which help offenders learn "how to search for a job, balance a checkbook, budget, control anger, make decisions, and set goals" (MacKenzie, 2006, p. 72). Limited quality research on the effectiveness of education programs exists (MacKenzie, 2006, p. 74). However, academic education programs are considered essential due to a general belief that education is important in its own right (Applegate et al., 1997; Cullen et al., 1990) and because of a strong correlation between educational level and criminal activity (MacKenzie, 2006, p. 70).

2) Vocational education uses "classroom-based education, job training, and apprenticeships in areas such as electrical and carpentry skills" (MacKenzie, 2006, p. 95). It also includes Correctional Industries programs. Correctional Industries employ offenders to produce a wide array of products for government and private sectors, including furniture, health technology, automobile parts, institutional and jail products, and more (MacKenzie, 2006, p. 101). Multi-component programs can help offenders in either finding employment or developing job search skills (MacKenzie, 2006, p. 103).

These programs provide offenders with multiple benefits, the most important being providing offenders with "real-world work experience, job skills, and vocational training" (MacKenzie, 2006, p. 92). All programs provide wages either to the offenders themselves or to pay restitution to victims (MacKenzie,

2006, p. 91). Substantial research shows that crime is associated with unemployment (Farrington, 1986; Sampson & Laub, 1990; Wolfgang et al., 1972) and demonstrates that offenders are generally less educated, have fewer job skills, and are more likely to be unemployed while in their communities (Andrews & Bonta, 2003). Further, offenders who are employed in the first six months after their release have fewer convictions than offenders who were unemployed and that offenders who were employed were convicted at less than half the rate of unemployed offenders (17% versus 41%) (Gillis et al., 1998). Nearly one-half of surveyed offenders (47.4%) had an unstable job history (Gillis et al., 1998).

3) Cognitive-behavioral treatments focus on individual-level change in thinking, reasoning, empathy, and problem solving (MacKenzie, 2006, p. 337). Dysfunctional behaviors are transformed through changes in beliefs, attitudes, and thought processes (Porporino et al., 1991). Cognitive-behavioral treatment aims to develop abilities in social skills, problem solving, critical reasoning, moral development, and coping (Henning & Freuh, 1996; MacKenzie, 2006, p. 133; Mahoney & Arnkoff, 1978). The premise is that cognitions, or perceptions, are believed to affect behavior and “changes in cognitions can bring about changes in behavior” (MacKenzie, 2006, p. 128). These techniques use modeling, role-playing, reinforcement, concrete verbal suggestions, and cognitive restructuring. The techniques are verbally interactive, self-reflective, and insight-oriented (MacKenzie, 2006, p. 61). Some evidence shows that these programs are relatively effective at reducing recidivism (MacKenzie, 2006, p. 129).

In her recent meta-analysis of correctional programming, (MacKenzie, 2006) focused on the effectiveness of the different strategies to reduce recidivism. Adamant about the need for evidence-based corrections, or a “program or policy supported by outcome evaluations clearly demonstrating effectiveness” (Drake et al., 2009), MacKenzie evaluated research on correctional programming with a rigorous scoring system (MacKenzie, 2006, p. 20).

Her analyses demonstrated that the following in-prison programs were the most effective in reducing crime for the adult offenders (in order from most to least effective): 1) academic education, 2) vocational education, and 3) cognitive-

behavioral therapies. The types of evidence used by MacKenzie and others demonstrated that correctional programs that use behavioral or cognitive-behavioral elements, are skill-oriented, and contain multimodal components are more effective than other types of programming (Andrews et al., 1990; MacKenzie, 2006, p. 334). None of the interventions focusing on punishment, deterrence, or control significantly reduced recidivism (MacKenzie, 2006, p. 334).

The Washington State Legislature also bases its conclusions on evidence-based corrections. The WSIPP conducted a study using meta-analyses of each type of correctional program, taking their study one step further to analyze the costs and benefits to taxpayers and crime victims (Drake et al., 2009). They used the same scoring system that MacKenzie did. The in-prison programs for adult offenders (excluding special populations) that they found to be most effective are as follows (from most to least effective): 1) vocational education, 2) academic education, and 3) cognitive- behavioral therapy.

The results of the cost-benefit analysis showed that the most effective rehabilitation programs also saved the most money for taxpayers. Both MacKenzie and the WSIPP produced similar results on the effectiveness of various programs though they used slightly different methods. There are other considerations that must be taken into account when determining the best rehabilitation strategy. First, individuals react differently to equivalent environments, making it necessary to find the program most suited to an individual's needs (Seymour 1981, p. 25; Toch 1992, p. 7; Zamble & Porporino 1988, p. 13). Therefore no single rehabilitation program can be recommended for an entire prison population (Cushing & Williams, 1995). Studies have inadequately assessed the effects of implementation of programs (Pearson et al., 2002). Programs also need to be long enough to have the expected impact on participants (MacKenzie, 2006, p. 55).

Finally, although cognitive-behavioral therapies provide opportunities for offenders to practice behavior change, researchers found that "maintaining improvement and making a skill permanent require the slow steady work that probably comes from new (neural) connections" (Doidge, 2007, p. 199).

Permanent changes for new behaviors take sustained practice and suggest the formation of brand-new brain structures (Pascual-Leone et al., 1999). This would in part explain why, when positive reinforcement at the prison ends, it is easy for offenders to relapse back into criminal behavior (Pearson et al., 2002) when the struggle to survive in “extremely adverse life conditions” (Rice & Remy, 1998).

2.2 Animal and Plant Programs in Prisons

Rehabilitation programs that also inspire the changes desired in cognitive-behavioral programs can include PAPs (Britton & Button, 2005; Cushing & Williams, 1995; Fournier et al., 2007; Furst, 2006; Moneymaker & Strimple, 1991; Strimple, 2003) and horticultural programs (Jiler, 2006; Rice et al., 1998). The PAPs are intended as vocational programs with an informal therapeutic aspect. Horticultural programs can be intended as vocational, therapeutic, or both (Jiler, 2006; Migura et al., 1997; Rice et al., 1998).

2.2.1 Animals in Prisons

Animals were originally used on prison farms as sources of food (Strimple, 2003), and at some prisons are still used only as sources of food for the prison industrial complex (Furst, 2006; Jiler, 2006, p. 26). However, PAPs, are relatively new to prisons (Furst, 2006), instituted within the past 25 years (Britton & Button, 2005; Furst, 2006). Since then, a variety of animals have been introduced into the correctional setting for rehabilitative purposes, including dogs, cats, and wild horses (Cushing & Williams, 1995; Furst, 2006; Strimple, 2003). The most popular programs, and those for which most studies are available, are programs that use dogs, which provide a service for the community by saving dogs that were going to be euthanized and by training dogs for the disabled (Cushing & Williams, 1995; Fournier et al., 2007; Moneymaker & Strimple, 1991). They are primarily intended to provide vocational training to the offenders (Furst, 2006), and in some cases to earn college credits (Strimple, 2003).

The animals are also used for therapeutic benefits though there is no use of the animals in direct conjunction with psychoanalysis or other clinical methods (Furst, 2006). Approximately 30% of the programs award vocational certificates

including a state vocational certificate, a pet care technician certificate, or veterinarian certificate. (Furst, 2006). In the national survey of PAPs, nearly 25% of respondents indicated that the PAP includes a job referral or link to potential jobs upon release. About 35% of surveys respondents knew of former offenders working with animals since their release (Furst, 2006). Of the 48 states that responded to the only inventory of PAPs in state correctional facilities, 38 had PAPs in one or more of their correctional facilities (Furst, 2006). Survey respondents overwhelmingly regarded these programs as positive (Furst, 2006).

The concept behind using PAPs originates in literature that explores the therapeutic value of human-animal interactions (Furst, 2006). Psychosocial effects on patients in psychiatric hospitals and nursing homes include improvements in psychiatric symptomology, social behavior, and psychological states (Fournier et al., 2007). Most PAPs studies are qualitative in nature (Britton & Button, 2005; Cushing & Williams, 1995; Fournier et al., 2007; Furst, 2006; Moneymaker & Strimple, 1991), and “indicators of social adjustment or behavioral change have been used to gauge a program’s success” (Cushing & Williams, 1995).

These altruistic activities give offenders such benefits as a sense of empowerment and purpose not available from the typical menial jobs available in prison; and greater self-esteem and self-confidence (Moneymaker & Strimple, 1991; Strimple, 2003; Toch, 2000). These altruistic activities can contribute to the cognitive restructuring (Toch, 2000) that is the purpose of cognitive behavioral programs. Moneymaker and Strimple (1991) reported that offenders felt more compassion and love after working in a PAP program. Offenders gained increased social skills and patience while working in a dog PAP (Turner, 2007), though further studies are needed to determine the effects that increased social interaction has on the offenders (Fournier et al., 2007; Turner, 2007). The most frequently cited benefit of PAPs was the sense of responsibility and empowerment the inmates gained by caring for their animals. There is anecdotal evidence that offenders in these programs recidivate at lower rates than other offenders (Furst, 2006).

Three challenges accompanied these programs: 1) increased surveillance of offenders in the program in an environment where being watched created stress; 2) failure of offenders not in the program to respect the dog training; 3) emotional turmoil that participants experienced when their dogs left the facility for adoption (Britton & Button, 2005). However, offenders also experienced increased freedom to walk around the prison grounds. There was more trust instilled in them, and they knew they had to strive to live up to that. Other inmates relished the chance to play with a dog. Gaining patience with their dogs helped them gain patience with their fellow offenders (Turner, 2007).

One animal program that stands out is a vocational reentry project focused on beekeeping. Sweet Beginnings in Chicago employs ex-offenders to provide them with job skills and certification. 172 former offenders have been trained by Sweet Beginnings over the last two-and-a-half years. While the rate of recidivism is 55% in Illinois, it has only been 4% for the graduates of the program. All the workers become members of the Illinois State Beekeepers Association and receive 60 hours of training and are certified in beekeeping by a local college. The honey and beeswax they harvest is incorporated into products such as lip balm and body lotion. Sales from these products gain some of their income (Urban Farm, 2010). They also rely on foundations for support, including The Boeing Company, W.K. Kellogg Foundation, Ben & Jerry's Foundation (North Lawndale Employment Network, 2010).

PAPs Research Limitations

Controlled studies are difficult to conduct because the prison administration cannot let offenders be randomly chosen to work in a PAPs program (Fournier et al., 2007). Only a small number of inmates participated in these programs, making sample sizes small and therefore harder to draw conclusions (Fournier et al., 2007; Moneymaker & Strimple, 1991). Existing studies did not account for confounding variables such as simultaneous participation in other programs that may have had an influence on behavior (Cushing & Williams, 1995). One way to offset the fact that offenders cannot be

randomly assigned to participate in PAPs is to randomly assign correctional institutions to have PAPs (Fournier et al., 2007).

Gaining access to a prison population to conduct research is difficult. Research changes prison routine and places an additional burden on prison staff (Glenn, 2008). It may be important to study the non human-animal interaction variables such as increased social interaction, to determine the extent to which participation in these programs may increase social interactions and thereby particularly affect social skills (Fournier et al., 2007). Although these studies did not directly establish participation in PAPs as a cause of reduced behavioral infractions and recidivism, participation in PAPs provided immediate emotional benefits to the inmates and reduced recidivism and that further studies are warranted (Cushing & Williams, 1995; Fournier et al., 2007; Moneymaker & Strimple, 1991; Strimple, 2003; Turner, 2007).

2.2.2 Plants in Prisons

Programs that use plants in prisons are horticultural in nature, and focus on education and certification, therapy, and/or production (Haller, 1998; Rice et al., 1993). Many prisons have small gardening or greenhouse programs (Jiler, 2006, p. 66). The purposes of most of these programs are to reduce institutional cost through food production, and provide vocational skills and/or certification (Jiler, pp. 26 & 38). Some of them use horticultural therapy, important to this study because many incorporate ecological approaches and participate in conservation and restoration efforts (e.g. Riker's Island in New York, San Francisco County Jail). They are also important because they combine therapeutic with vocational aspects and several feature reentry programs.

Horticultural therapy programs (HTPs), usually a component of horticultural vocational programs, focus on “the process of learning and the applicability of the material to other areas of the students’ lives” (Rice et al., 1998), and provide an additional method for rehabilitation that other programs do not incorporate. Horticultural therapy is defined as: “a treatment modality that uses plants and plant products to improve the social, cognitive, physical, psychological, and general health and well-being of its participants” (Simson &

Straus, 2003, p. xxiii). The most current study documented that 19% of state prisons had formal or informal HTPs (Rice et al., 1998).

Metaphors are used to link nature, gardening and the offenders' own lives: weeding removes negative thoughts and harmful influences; transplanting and watering "symbolize the stage of leaving jail and maintaining a productive life outside" (Jiler, 2006, p. 37). Group gardening activities encourage teamwork and communication skills as well as leadership, pride, and creativity (Rice et al., 1998). Some of these programs incorporate post-release programs into the standard vocational and therapeutic aspects of the programs.

One project that exemplifies these patterns is the Garden Project in San Francisco, founded in 1992, to "provide support to former offenders through counseling and assistance in continuing education, while also impacting the communities from which they come." (The Garden Project, 2000a). It teaches offenders horticulture skills, provides them with a paycheck, opportunities to develop life skills and continue their education to help them stay out of jail (The Garden Project, 2000a). The program is supported by the sales of its produce, private donations, foundation grants, and through county and city funds. More than 10,000 people have been through their programs. Two years after release, recidivism among Garden Project participants was 24% in contrast to normal San Francisco jail offenders at 55% (Garcia, 1999). Some effects of the horticultural therapy that were retained after release were lower depression, substance abuse reduction, and a sustained desire to get help (Rice & Remy, 1998).

Another such project is in Riker's Island, the largest jail complex in the United States (20,000 offenders), which began its horticultural program in 1996 (Jiler, 2006, p. 13). Their GreenHouse and post-release GreenTeam programs are vocational education programs that incorporate "garden therapy, science and English literacy, life skill development, and job enrichment with programs for job placement once a student has served his/her sentence" (Jiler, 2006, p. 27). These programs are administered and funded by the Horticultural Society of New York, which offers offenders post-release, 9-12 month paid internships to maintain gardens throughout the city (Cernansky, 2009). Qualitative evidence suggests it

remarkably reduces recidivism (Jiler, 2006, p. 7). The San Francisco County Jail and Riker's Island programs change the quality of life within prisons and reduce recidivism rates, and that they have stayed (18 years and 14 years, respectively) documents the success of their programs.

2.2.3 Plants and Science and Sustainability Education in Prisons

Some vocational horticulture programs include partnerships between prisons and environmental agencies whose aims are to cultivate native plants and restore them to their native habitat, and eradicate invasive plant species. They combine classroom education with hands-on experience in caring for the plants, planting them in their native habitat, and cutting or spraying pesticide on invasive plants with formal instruction and certification. These programs have existed in numerous states, including Ohio, Hawaii, California, Michigan, Minnesota, Florida, and Washington State (Associated Press, 2003; Big Stone National Wildlife Refuge, 2010; Campbell & Carter, 1999; Farley, 2009; Martineau, 2009; Prater & Menges, 1972; The Garden Project, 2000b).

In 2001, the Big Stone National Wildlife Refuge and the Prairie Correctional Facility in Appleton, Minnesota began using offender labor to grow and collect native plant seed (Big Stone National Wildlife Refuge, 2010). They grew approximately 40 species of endangered native prairie plants for 600 acres of the Refuge. Inmates received education in plant identification and plant life history, and habitat requirements needed to maximize seed production. The offenders who participated in the program gained a great sense of pride, self-worth and satisfaction as a result of being a part of the project, often returning to tutor new participants. There have been no follow up studies on recidivism (Big Stone National Wildlife Refuge, 2010).

Another such program also incorporated training in scientific inquiry. This program took place at Fields High School, an accredited high school in the Ohio State Reformatory in Mansfield, Ohio. They developed an ecology program to study the interactions of organisms and their environment, including sampling benthic organisms and running chemical analyses of water. The intention of this program was to train the offenders in the current concerns and techniques of

ecology and to instill a stewardship ethic and appreciation for the aesthetics of nature, which is much aligned with the intentions of the SPP (Prater & Menges, 1972). Offenders in the program established an Ecology Club, where they had the opportunity to continue participation beyond the life of the formal program and into their post-release life. Ecology Club was chartered and its members spoke to organizations outside the prison. No recidivism studies were conducted. There was qualitative evidence from an inmate who said that the program had been his most meaningful rehabilitation experience (Prater & Menges, 1972).

2.3 Elaboration of SPP Programs

Since 2009, the SPP has implemented three Ecological Research and Conservation (ERC) projects: 1) Prairie Restoration Project, 2) Oregon Spotted Frog Project, 3) Apiculture/Beekeeping Project, and 4) Science and Sustainability Lecture Series (SSLS).

1) The Prairie Restoration project is a partnership between the SPP, The Nature Conservancy and U.S. Army. Started in 2009, the Stafford Creek Corrections Center has to date propagated over 580,000 native plants of 30 different species for the Fort Lewis military base, which protects the largest remaining portion of Puget Sound's prairie ecosystem. More than 30 offenders and 7 staff have worked on this project. Learning skills in native plant ecology and large-scale seed production, The Prairie Restoration project provides an opportunity to explain important ecological principles, prepare inmates for new careers, opportunities for the offenders to build confidence, and a place to be inspired by their successes in growing plants for a good cause (Elliott, 2010).

2) Installed at CCCC in 2009, the Oregon Spotted Frog Project is a partnership between the SPP and the Washington Department of Fish & Wildlife (WDFW). The Oregon Spotted Frog, which has disappeared from over 70% of its historic range, is known in only three areas in Washington State. A pilot translocation effort at a recipient site located on Joint Base Lewis-McChord (JBLM) is underway (Cooper & Plomski, 2010). With an 84% survivorship rate at CCCC, 55 frogs were released into JBLM wetlands in 2009. With an 86%

survivorship rate, 82 frogs were released in 2010. The CCCC has the greatest survivorship rate of all rearing institutions including Northwest Trek and the Oregon Zoo. The SPP and WDFW plan on doubling the number of frogs in 2011 (they will receive around 200 eggs to raise), and will conduct a pilot study comparing different populations of the Oregon Spotted Frog (J. Cooper, pers. comm., December 12, 2010).

3) In 2009, approximately 28 offenders and 5 staff participated in a pilot training program to become beekeepers. Under the direction of SPP and correctional staff, offenders at CCCC and SCCC expanded existing beekeeping operations by installing and maintaining new hives. A contracted beekeeper and biologist developed, lead, and evaluated a beekeeping course to provide certificates to offenders. In the SPP program offenders participated in education about bee biology and behavior, and beekeeping equipment and commercial business practices (SPP, 2010e).

4) In the SSLS (as of December 2010) 36 presenters from diverse organizations, including the Washington State Department of Ecology, the Northwest Indian Drug and Alcohol Treatment Center, and the South Puget Sound Salmon Enhancement Group, delivered a total of over 66 lectures. Delivered at CCCC, WCCW, SCCC, and MICC, lecture topics spanned both the personal health and environmental aspects of sustainability. Topics have included the Poetry of Nature, Science, and Sustainability, Nearshore Restoration in Puget Sound, Sustainability and the Fair Trade Industry, and Ethnobotany. Over 1000 offenders have participated in the SSLS, which was started in 2005 and will continue through at least June 2011.

CHAPTER 3: METHODS

3.1 Overview

I used mixed methodologies, relying primarily on qualitative data, and two sets of quantitative data. Both sets of data drew from offender and prison staff experiences with the SPP programs. Qualitative methodologies allow for evaluating aspects of programs that are not revealed by quantitative techniques (Mrazek, 1993) and help the researcher get insights into the inner experience of participants and to discover rather than test variables and hypotheses (Corbin & Strauss, 2008, p. 12). These methods allow the researcher to study programs in detail and depth, where the data collection is not limited to “predetermined categories of analysis” (Patton, 1987, p. 9). Interview-based qualitative research generally involves small sample sizes for the amount of detail sought, rather than a wide range of responses (Biklen & Bogdan, 1992, p. 3, Patton, 1987, p. 9). Quantitative methods, in contrast, fit diverse experiences into predetermined categories, facilitate comparison of the data, and provide results that can be generalized. They rely on larger sample sizes to answer a limited set of questions (Patton, 1987, p. 9), and they set out to prove or disprove a hypothesis that they hold as they enter the study (Biklen & Bogdan, 1992, p. 31).

I used grounded theory (Corbin & Strauss, 2007) to evaluate my qualitative data. Rather than starting out by developing a hypothesis, grounded theory seeks to build the hypothesis from the data (Corbin & Strauss, 2007, p. 1) and analyze the data for concepts or themes. Those themes can then be developed into even higher-level categories and theories (Corbin & Strauss, 2007, p. 55). I used five-point Likert Scale items to generate quantitative data from the offender surveys. A Likert scale is an attitudinal scale that measures “the intensity of respondents’ attitudes towards the various aspects of a situation” (Hoy, 2009, p. 145) and indicates the extent to which a respondent agrees with a statement (Hoy, 2009, p. 124).

3.2 Offender and Staff Interviews

3.2.1 Subjects

Offenders (all males) were selected because of their direct participation in SPP science projects and lecture series. Staff members (male and female) were selected because of their peripheral or direct involvement with the SPP. Permission to interview staff and offenders was granted by the WDOC- and TESC-approved Human Subjects Review application. Six offenders and four staff members were interviewed at CCCC and 19 offenders and eight staff were interviewed at SCCC, for a total of 37 interviewees (25 offenders and 12 staff).

3.2.2 Procedures

A semi-structured format was used for all interviews, which provided freedom to ask additional questions on unexpected or noteworthy responses. The Associate from David Heil & Associates framed, wrote and asked the majority of questions. Interviews were recorded with a digital audio recorder with extension speakers. Handwritten notes were taken in the event that the audio recordings were lost or damaged. Most interviews lasted about 30 min, with the exception of the larger groups of offenders, which lasted 60 min. Staff interviews were conducted as one-on-one interviews (12 staff total), and the offender interviews were interviewed in groups of 2, 3, 4, and 6.

Content from all the interviews was transcribed by David Heil & Associates, and I reviewed each transcribed interview three times, and then analyzed them for possible benefits of SPP programs for offenders as observed by offenders and staff. I also identified the most commonly mentioned challenges to program implementation and recommendations for program development by offenders and staff. I counted a comment or a concept as a theme if it was mentioned 5 or more times.

The interviews for offenders and staff included questions about their experiences with SPP activities: their observation of effects on the prison community that seemed to occur from SPP activities; their perception of challenges to implementing SPP programs; and their recommendations for SPP program development (Appendix B).

3.3 Offender Surveys

3.3.1 Subjects

The subjects for the surveys were all offenders (male and female). They were selected because of their direct participation in the ERC projects or lecture series. The total number of offenders that filled out matched pre- and post-surveys for the lecture series was 179 for the first set of questions and 174 for the second set of questions. The total number for those who filled out matching pre- and post-surveys for the ERC projects was 16. Permission to survey offenders was granted by the WDOC. The lectures and the sample size of each lecture ranged widely in terms of topic and size (Table 2).

Table 2
Lecture Topics and Sample Size by Lecture

Topic	Lecturer	Date	Sample Size
Wolves: Endangered Species Ecology, Conservation, and Wildlife-Related Jobs	Megan Moskwa, Education Director, Wolf Haven International	11/12/09 (SCCC)	47
		11/19/09 (MICC)	43
		6/1/10 (WCCW)	16
Ant Biology, Social Behavior, and Scientific Research: Lessons for the Human Race	John Longino, Ph.D., Entomologist and Faculty Member The Evergreen State College	12/1/09 (MICC)	15
People, Planet, Profit: Sustainability 101	Sarah Clarke, Research Associate, Sustainable Prisons Project	12/1/09 (WCCW)	17
Poetry of Nature, Science, and Sustainability	Don Foran, Ph.D., Poet and Faculty Member, The Evergreen State College	1/5/09 (WCCW)	24
The Science and Sustainability of Salmon in the Pacific Northwest	Lance Winecka, Executive Director, South Puget Sound Salmon Enhancement Group	2/2/09 (WCCW)	22
Total Sample Size			184

3.3.2 Procedures

The surveys that were administered for the ERC projects included five-point scaled items designed to measure the offenders' attitudes towards their jobs and other offenders (Appendix C). SSLS Surveys included the five-point scaled questions designed to measure interest in increasing social interactions within the prison community and their interest in learning about the environment and lecture topics (Appendix C). Participants in the SSLS were asked to complete a retrospective Post-Lecture Survey at the conclusion of each lecture, and participants in the ERC projects were asked to complete Pre- and Post-Project Surveys.

For the ERC project survey analysis I analyzed questions C1-C6 (Appendix C). I combined the responses from the three sets (beekeeping, prairie plants, and frogs) of surveys. I also aggregated the response categories, i.e., I combined the responses of "strongly agree" and "agree" together, and "strongly disagree" and "disagree." I used a paired t-test to compare mean responses to questions before and after offenders participated in a single cycle of the specific ERC project. For the SSLS survey analysis, I used questions B1-B4 (Appendix C). I combined responses to B1 and B2; and B3 and B4. I aggregated the response categories in the same way that I aggregated categories for the ERC project surveys. I used the McNemar test to determine if there was a significant difference in proportions of offenders who answered "strongly agree/agree" from the pre- to post-SSLS responses.

CHAPTER 4: RESULTS

I separate this chapter into two sections: Offender and Staff Interviews and Offender Surveys. I focus here on three themes that have emerged from using grounded theory to evaluate my qualitative analysis: 1) the benefits that the offenders believe they receive from participation in SPP programs 2) challenges to SPP program implementation, and 3) offender and prison staff recommendations for SPP programs.

The quantitative analysis is also exploratory. The two most significant results that emerged from this analysis were: 1) offenders were interested in seeking information on lecture-specific environmental topics and 2) offenders were interested in talking to other offenders about these topics. I first discuss the findings from the interviews, followed by the results of the survey analyses.

4.1 Offender and Staff Interviews

4.1.1 Benefits of Participating in SPP

Using grounded theory I identified a wide variety of benefits, ranging from attitudes towards the environment, behavior with other offenders, and personal benefits (Table 3). I discuss the three most common perceived benefits: 1) excitement about and interest in environmental topics, 2) an increase in social interactions and positive conversations, and 3) an increase in job skills and opportunities.

Table 3
Perceived Benefits to Offenders Participating in SPP

	N
Excitement about environmental topics	81
Increase in positive conversations	71
Job skills & opportunities	26
Bigger worldview	19
Benefit of hands-on work	17
Connection to environment	15
Self esteem	14
Ideas for post-release behavior	12
Giving back to community	11
Nurturing instinct	8
Therapeutic effects on the individual	8
Awareness of environmental issues	7
Generating sustainability ideas	6
Empathy	5
Hope	5
Validation as human beings	5

Interest in and Excitement about Environmental Topics

The most commonly reported benefit of SPP programs was an interest in and excitement about environmental topics. Both staff and offenders noticed that the offenders became very interested in the specific science topics that they were exposed to by the SPP. One staff member believed that offenders were interested more in learning about and working with bees than the job position. The offenders liked to talk about what they learned and there were many comments similar to the one that follows, where an SPP participant talks about his engagement with a specific topic:

It was pretty enlightening about what kind of sociology is behind the bee and what they do and how they do it and how they live. And then on top of that, of course, what their purpose is on Earth and what they do for the environment and our food.

Many offenders believed that the lectures were a starting point that piqued other offenders’ interest in learning. Offenders who were known to regularly attend lectures came to play a role as a spokesperson or ambassador for the SPP

lectures and ERC projects. This enthusiasm and interaction are rare occurrences in the prison environment, where apathy, alienation and social distancing prevail (Haney, 2002). Here, one offender reveals the phenomenon of playing the role of ambassador and the impression that the interest of the other offenders made on him:

The people who go to see them (the lectures), the ones in my building that I talk to want to know if they are going to have more and they are really interested. Its like wow, its amazing for how many people came up to me asking if they are going to have more of the seminars. Its amazing.

Prison staff were also impressed by the enthusiasm and interest that the offenders showed:

After the initial lecture they actually came across as being interested. I mean truly interested. They came up with good questions and when they came back to work they wanted to know when is the next one. They were all excited about it.

Many offenders believed that others became excited as word spread from those who were already participating in the SPP. One offender remarked “Him being around me and talking about it (beekeeping) got me interested more and more.” This man eventually became involved in and very committed to the beekeeping ERC and planned to pursue beekeeping after his release.

A staff member said “once people go to a lecture they will submit a job change in order to work in the sustainability part of what we do here.” One offender wanted to work with the bees so badly that he gave up on of the most sought after, highest-paying jobs as a coordinator for Correctional Industries (\$16.00/hr). For offenders and administrators these responses are promising. The SPP program has the potential to improve conditions within the prison environment and further offenders’ learning, in turn increasing their chances of success outside the prison walls. For educators and those concerned with

environmental conservation these results show an increased interest in the environment that could lead to conservation action and behaviors.

Increase in Social Interactions and Positive Conversations

The second most significant benefit that interviewees believed was a result of the SPP was an increase in social interactions and positive conversations inside and outside of SPP programs. Because the men often seek to undermine and harm each other, offenders usually keep to themselves in prison (Haney, 2002). One man gave a strong impression of the prison environment as he perceives it and how he believes the SPP provided a way in which this fact of prison life is counteracted:

It encourages you to talk to people you wouldn't normally talk with in prison, especially a closed society where associations with people are always liabilities and never benefits. It (the SPP) gets you into situations where you can talk to other people without it being a liability.

According to one staff member, conversations that do happen in prison revolve around negative topics that keep offenders in a narrow field of vision. One of the inmates had this to say:

People on the inside (of SCCC) who are doing the bee class that I knew of, we talked about it later. We would talk about what they did compared to what we did out here (outside the perimeter of SCCC). It brings positive commonalities instead of the crimes we committed or had in common.

Prison staff also noticed this phenomenon. They believed that the SPP was keeping the offenders busy and changing conversation topics, thereby contributing to changing thought processes. Here is what one staff member had to say:

I think the lecture series helps broaden their minds, gives them things to work on and things to discuss. When they're discussing those types of things they're not talking about escape and trying to exploit other people. It changes their thought process in a beneficial way.

As offenders in the beekeeping ERC project learned about the biology of bees and gained hands-on experience in beekeeping, they piqued the interest of other offenders and were sought out by offenders who wanted to learn about bees.

It is likely that there is still anxiety in the social situations that the SPP seems to create and that the newness of positive interactions may be uncomfortable for people conditioned to negativity, but it does seem that these interactions could be relieving and provide offenders with at least some sense of community and belonging. Another way in which prisoners are isolated is by staying within their own class, ethnic and prison backgrounds. Offenders believed that the SPP projects helped them cut across social barriers:

We had a bunch of people with different backgrounds. Our prison backgrounds are different and probably our social and cultural backgrounds are as diverse as our jobs at prison are, yet we are all laughing when we are getting around the bees.

Lastly, one of the offenders believed that the SPP created increased communication between offenders and staff, where usually staff have to keep a certain personal distance from offenders. As a result of working on the frog project one offender said he got to "interact with the prison counselors on a different level" and could talk with them about things other than "pushing the paperwork through." While I recognize the need to keep some level of personal distance between offenders and prison staff, this type of interaction could potentially contribute to less strained relations within the prison, helping reduce fear and mistrust between offenders and prison staff.

Increase in Job Skills and Opportunities

The third most significant benefit as perceived by offenders and prison staff is an increase in job skills and opportunities. The SPP exposed offenders to an array of job possibilities that went beyond the menial jobs they often have in prison (Haney, 2002). The offenders know that having specialized job skills will help them find employment, an important goal that will help them keep from reoffending. One offender expressed the hope that he believed he received by being exposed to new job opportunities through the SPP:

What I've seen since the schools have come in, you couldn't hope for anything more. It gives people the opportunities that they can make it out there.

Offenders also felt that the work they were exposed to through the SPP was more engaging than the menial labor that was widely available. They liked it because there was more thinking and pleasure involved through accomplishments such as seeing their beehives thrive. A wider array of types of jobs can diversify an offender's skill sets, therefore increasing the opportunity for employment and the possibility of finding work that they care about. Staff remarked that offenders in the conservation projects improved their work performance during the project and that many other offenders were seeking to do the same so they could become involved with the ERC projects.

By bringing in lecturers who either had their own business or who informed offenders of other jobs, two offenders expressed that the SPP opened their eyes to what other people were doing outside of prison to make money and that they could make money legally as well. Being in a prison environment where offenders keep to themselves and do not communicate much can be detrimental to developing key job skills such as interpersonal relations and teamwork (Haney, 2002). Prison staff believed that offenders in the ERC projects were learning to communicate and work together as a team, and that some of this is because the offenders are exposed to a different culture via the SPP:

It (beekeeping ERC project) makes them better employees. They're learning job skills and they're learning how to work with others and they're exposed to a different culture than they are exposed to every day when they're living inside here.

Offenders and staff claimed that as a result of SPP programs, they became interested in looking into the following topics after they are released (# of requests in parentheses):

- agriculture (1)
- beekeeping (6)
- forestry (1)
- frog rearing (1)
- horticulture (1)
- making goods out of recycled materials (1)

That the SPP seems to offer increased job skills and opportunities is promising for quality of life and rehabilitation outcomes. Employment is one of the factors that reduces an offender's likelihood to continue committing crimes. As Table 3 indicates, other benefits are not particularly surprising. These include widening of the offenders' worldview as they learn more about science and sustainability; receiving benefits of the hands-on work that comes with the ERC projects; and an increased sense of connection to the environment. Additionally, there were emotional benefits that the offenders and staff believed came with participation in the SPP: increased self-esteem by being responsible for the health of the organisms under their care and having increased freedom to make independent decisions within the projects, empathy for living organisms, calming therapeutic effects, altruistic feelings of giving back to the community, and validation as human beings as a result of interacting with SPP staff and guests who visited the prison from the outside.

4.1.2 Challenges to SPP Program Implementation

There were not a wide variety of challenges mentioned by prison staff (offenders were not interviewed about challenges). Most of the challenges had to do with not having enough time (Table 4). The interview questions and responses focused on perceived difficulties of implementing SPP activities rather than problems the offenders may face as a result of participation in SPP. Of the challenges that were frequently talked about, the three most frequent were: 1) getting more interest and participation in the SPP, 2) the need for additional security staff, and 3) finding staff with the time to take on SPP projects.

Table 4
Perceived Challenges to Implementing SPP Activities

	N
Interest and participation in the SPP	13
Need for additional security staff	12
Finding staff to take on projects	10
Time for staff to attend lectures	5

Interest and Participation in the SPP

Getting staff and offender interest and participation were the biggest challenges that were mentioned. Participation in sustainability-related behavior is a challenge with most Americans (Moser, 2006). Finding interest and participation within prison walls has parallels to and differences from how this manifests outside of prisons. One similarity is that it is difficult to get more than a core group of people interested in science and sustainability. Here one prison staff member speaks to this phenomenon:

(Is there anything that is particularly challenging making lectures happen in this kind of setting?) Getting the interest. Other than the 65 that come to every lecture we have or every event that we have, getting the interest of everybody else. That seems to be our hardest, short of going to every unit and making them sign up.

Prison staff also believed that one of the roadblocks to getting more offender participation is the mistrust that offenders have towards prison staff and Washington State. They felt that in general offenders have a “what’s in it for me” attitude and may think that the State is making money from such programs. Staff is also a critical factor in the success of any program, and they have the power to sabotage sustainability and education efforts. In this arena the tensions between staff and offenders reveal themselves again. The prison staff we interviewed believed that other staff may not participate if they think the proceeds of recycling went to an offender fund, and vice versa. Staff felt that top-down mandates to make offenders and staff participate in sustainable behavior could alienate people and keep them from participating. These results show that while there is great interest with a core group of offenders and staff, and the word appears to be spreading, the challenge remains to getting a wider audience within the prison walls to participate in the SPP and in sustainable practices in general.

Security Concerns and the Need for Additional Security Staff

The second biggest perceived challenge was security concerns and the need for additional security staff. Prisons are structured environments where movement and the types of items allowed to the offenders are very restricted and closely monitored. SPP activities, especially ERC projects, feature hands-on components, including sharp tools and chemicals. Prisons are careful about what items they allow outsiders to bring in because the offenders could use certain items for weapons, escape mechanisms, or to sell to each other. When an SPP lecturer or scientist wants to bring in items, each item must be approved at least two weeks in advance of the SPP activity. One staff member mentioned that SPP staff and guests need to be vigilant about getting approval for items ahead of time since it can put staff on the spot to complete this last-minute approval work:

...the security clearance...we’re getting better at it but sometimes people like to wait a really long time before they give us that. The person I go to it kind of puts her on the spot to get them done, or like a last minute person is going to come, which isn’t a huge deal but you have to get the information and sit down at the computer and get it cleared.

Adding programs such as the SPP presents a need for finding additional security staff to monitor the offenders. One staff person explained how and why they have to ask for additional staff:

We want to keep custody and security in mind and they'll say give them a couple of days and they'll (*security staff*) figure out if they can do it. We're probably at that tipping point now as far as programs and supervision being able to properly supervise them with the number of offenders we have. We do have a lot of people out there working and not that many supervisors.

Other security concerns arise with some activities that are part of sustainable practices, such as collecting recycling outside the perimeter fence, which cannot be done if it is foggy outside. Additionally, SPP programs are by necessity limited to people who are on good behavior, others cannot participate because it is a security concern. The prison must also be mindful about where they place programs because some offenders do not have clearance for lower-security areas.

Finding Staff with the Time to Take on SPP Projects

The third most frequently mentioned challenge was finding staff with enough time to oversee the SPP projects, in which offenders were expressing growing interest. With budget cuts resulting in layoffs and cuts in existing programs, prison staff is extremely busy. These budget cuts also make it difficult, if not impossible, to hire staff dedicated solely to SPP activities. One staff member put it succinctly when they said that they believe that “the biggest challenge is trying to make sure we have the staff to cover it all.” A staff member who works on the beekeeping projects at one of the facilities talks about her experience of having beekeeping duties in addition to her normal duties as a counselor:

Its sometimes very taxing...as a counselor we are constantly dealing with things that change and fluctuate all the time. Sometimes all of a sudden something new happens (*with their counseling work*) and boom it has to be done now and we want it done now. That's all fine and good but you have something out there (*with the bees*) that says go take care of this now or we are going to lose this.

The last and least frequently mentioned challenge was that of finding the best times for staff to attend lectures. Because staff are so busy, they are often not able to make it to lectures during the day. Holding lectures in the evening also presents challenges. Dinner for the staff would not be available at the prison. Staff would likely have to go home, which is often far from the facility, and come back out later for the lectures.

4.1.3 Recommendations for Implementing SPP Programs

There were not a wide variety of recommendations. The most common recommendations made by offenders and prison staff revealed a desire for more SPP activities (Table 5). There were not a wide variety of recommendations. The three most noteworthy were: 1) add new topics for SPP activities, 2) add formal vocational training, and 3) expand existing SPP activities.

Table 5
Offender and Prison Staff Recommendations for SPP

	N
Add new topics for SPP activities	19
Add formal vocational training	12
Expanding existing SPP activities	9
More hands-on activities	8
Add academic education	5
Change length & frequency of lectures	5
Ensure longevity of SPP	5

Add New Topics for SPP Activities

Given the positive feedback of prison staff and offenders, it may be no surprise that the majority of recommendations centered on expanding upon SPP activities in various ways. The most frequent requests were to incorporate new

topics in the SSSL and ERC projects. Suggested new topics included (frequency of topic in parentheses):

- Alternative energy (wind, solar, and marine-generated energy) (6)
- Behavior change for sustainable practices (1)
- Composting biosolids (1)
- Cricket rearing for ERC frog project (3)
- Dog training (1)
- Hydrology (including wastewater management, recharging water tables, and water quality) (3)
- Pedology (1)
- Raising endangered organisms (turtles & butterflies) (2)
- Vermiculture (1)
- Wastewater management (1)

Since the time of the interviews two of these topics have already been instated within some of the institutions: 1) butterfly rearing and 2) cricket rearing for the ERC frog project. The most interest was shown in the topic of alternative energy and arose from concern for the environment and a belief that there will be increasing jobs available in this field.

Add Formal Vocational Training

Offenders and staff knew that helping offenders find employment is a key to help them make a living and reduce the likelihood of re-offending. The offenders were excited about getting skills that would give them a leg up in the emerging green economy. To the offenders, the SPP offers the possibility of a link to find meaningful, well-paying work in the prison and upon their release, something that is normally difficult for an offender/ex-offender to find (Stafford, 2006). The offenders we interviewed felt that the SPP introduced them to better options where they could learn how to create their own business, or find work in a more engaging field, such as beekeeping. One offender talked about his desire for a vocational component of SPP by linking them directly to the community, as well as his view of the jobs normally available to ex-offenders:

Ideally if we had an organization that gave some vocational classes, for instance like beekeeping, and they put us together with companies like beekeeping companies of some sort, that would interview you and hire you directly out of prison so you wouldn't have that down time...If you had a job waiting for you directly out of prison on something you were trained for and you can immediately go into something better than a crappy part-time minimum wage job.

Expand Existing SPP Activities

The third most frequent recommendation was to expand existing activities. Eight out of the nine requests were for expanding the ERC projects. Following are the requested ERC project expansions (frequency in parentheses):

- All of the ERC projects (1)
- Horticulture (3)
- Endangered frog rearing (1)
- Beekeeping (3)

With the horticulture program, the desire was to expand the gardens themselves. For beekeeping, there were three requests: 1) increase the amount of hives, 2) increasing the amount of time during the year that it is done (from spring to fall), and 3) do research on colony collapse via the beekeeping they are doing. One staff member requested that the SSLS repeat the lectures because there are so many new offenders coming in each week. There were more offenders involved in beekeeping and horticulture than there were in the frog rearing, which may explain why there was only one request for the frog rearing.

Other recommendations are not surprising given the interests of offenders and staff. Hands-on work was the most engaging for the offenders, creating academic components, increasing the length and frequency of the lectures, and supporting the longevity of the programs all fit in line with the offenders and staff being excited and enthused about SPP projects

According to the offenders and prison staff we interviewed, offers something hopeful that enhances and widens the offenders' worlds while still in

prison. The SPP takes their minds beyond prison walls and opens up new opportunities, giving them positive foci. The perceived challenges to implementing SPP are complex issues to resolve, and it seems that the most frequent recommendations related to other, easier to talk about topics. Clearly, to implement the recommendations to increase SPP activity, the challenges will need to be faced and worked through.

4.2 Offender Surveys

The McNemar test showed that there was a significant difference between the pre-SSLS and post-SSLS survey scores for questions B1-B4, where there was an increase in offenders' likelihood to seek out information on and talk to other offenders about environmental topics after participating in a lecture. These findings support the interview results where offenders and staff believed that the SPP was increasing interest in environmental topics and increasing social interaction and positive conversation. The paired t-test showed no significant differences between the pre- and post-ERC project survey questions that measured the offenders' attitudes towards their jobs and other offenders. Because the SSLS survey and qualitative analyses results indicated that the SPP did have effects on the offenders, the ERC project survey results suggest not that the SPP does not have effects, but rather that the survey instrument may need to be refined.

CHAPTER 5: DISCUSSION AND RECOMMENDATIONS

In this chapter I address the purposes in my introduction: 1) determine the extent to which SPP programs share characteristics with the correctional programs that have been documented as being the most effective at reducing crime; and 2) assess the significance of environmental education in the SPP's potential effectiveness in supporting rehabilitative outcomes. I then discuss the implications of my study for a variety of stakeholders. I end with recommendations for program improvements and future funding and research.

5.1 Discussion

5.1.1 Rehabilitation and The SPP

Excitement and Interest in the Environment and Increase in Social Interaction and Positive Conversation.

Although it suggests an improved quality of life, the theme of excitement is not a part of any specific rehabilitative strategy. Responses from prison staff and offenders in the increase in social interaction and positive conversation theme indicated that the SPP seems to have social interaction among offenders, including peer mentoring. The quantitative analysis of the SSLS also supported the common belief that increased social interaction among offenders happened as a result of the SPP.

The accounts of the offenders and prison staff that we interviewed suggest that the SPP helped offenders build social skills, gain confidence, change thought processes, and practice problem-solving skills; some of the same skills that offenders in PAPs, HTPs, conservation and ecology programs gained (Big Stone National Wildlife Refuge, 2010; Fournier et al., 2007; Prater & Menges, 1972; Rice et al., 1993; Turner, 2007). Increased social interactions develop interpersonal skills that the offenders need to hold a job, a deficit described by Motiuk and Brown (1993). Results suggest that participation in the SPP fulfills an aim of cognitive behavioral therapies when it directs attention to more productive, positive thought processes (Porporino et al., 1991), as it gives a chance, through

practice of new skills, to develop new neural pathways that contribute to lasting behavior change (Pascual et al., 1999).

Job Skills and Opportunities

Although the SPP did not provide vocational certification or formalized vocational programs, the interviewees believed that it provided offenders with real-world work experience (including building interpersonal skills), wages, and job skills, described by MacKenzie as aspects of vocational programs (MacKenzie, 2006, p. 92). These outcomes of SPP participation address a major deficit for people who have fewer job skills and are more likely to be unemployed while in their respective communities (Andrews & Bonta, 2003).

Lower-Level Themes and Occurrences

Some of the less frequent themes suggest that the SPP has effects similar to those of cognitive-behavioral programs and is fostering an improved quality of life. These themes included increased self-esteem, altruistic motives, empathy, nurturing, hope, and increased freedom, which help develop “abilities in social skills, problem-solving, critical reasoning, moral development, and coping” (Henning & Freuh, 1996; MacKenzie, 2006, p. 133; Mahoney & Arnkoff, 1978) and changing “beliefs, attitudes and thought processes” (Porporino et al., 1991) from originally dysfunctional behaviors. These effects were similar to those of PAPs (Moneymaker & Strimple, 1991; Strimple, 2003; Toch, 2000), HTPs (Jiler, 2006), and plant conservation programs (Big Stone National Wildlife Refuge, 2010). Along with requests for more academic education, results suggest that the SPP project outcomes combine aspects of all three of the most effective rehabilitation programs.

5.1.2 Science and Sustainability Education

The responses from offenders and prison staff indicate that science and sustainability education appear to have played two roles in the SPP: 1) increasing an environmental stewardship ethic; and 2) improving quality of life and providing therapeutic effects. Quantitative results from the SSLS surveys also show an increased interest in environmental topics. Outcomes of SPP projects seemed to include fulfilling the desired outcomes of environmental education as

described by UNESCO (1978). The interviews also suggest that science and sustainability education improved the quality of offenders' lives and contributed to cognitive-behavioral outcomes by giving them excitement, positive topics of conversation, self-esteem, encourage a nurturing instinct, a connection to the environment, and other outcomes.

Sources of Bias and Confounding Variables in my Study

In my study, no control group was used and so there was simultaneous participation in other programs, a common problem when conducting studies in correctional institutions, listed by Cushing and Williams (1995). Sample sizes were relatively small and offenders were not randomly assigned to the program or my study; as with PAPs and HTPs, SPP offenders must be meeting a standard of good behavior, making truly random sampling impossible. SPP participants had an interest in environmental issues before participating in the SPP and the 2009 Heil report demonstrated that offenders who participated in the SPP rated higher than the national average for caring about things like biodiversity (McCracken & Magharious, 2009). Offenders may have over-reported positive effects because of wanting to be seen in a favorable light. Lastly, my study served as a pilot study, therefore pilot tested, benchmark instruments were not used to collect the data for this study.

5.2 Implications

My work suggests that the SPP creates rehabilitative outcomes, inspires an environmental stewardship ethic, and improves the quality of life for offenders. These results have implications for a variety of stakeholders. For those associated with the Corrections Industry, the SPP represents a promising rehabilitation program that contributes to a more positive view of corrections: it saves taxpayer money through sustainable practices and reducing crime, and helps the environment. For those reasons, this study is also of interest to taxpayers. The SPP is worthwhile to offenders because it provides a way to gain job and life skills, as well as improve their quality of life while incarcerated.

For natural scientists and science educators this program taps a new audience that is extremely receptive to science and sustainability education, and provides an opportunity to learn how to reach less interested audiences. Additionally, offenders may generate useful questions for research because they bring “a fresh perspective” (Nadkarni, 2004). Social and natural scientists will benefit from such a program because it provides an ideal place to study the interrelated social, environmental, and economic aspects of sustainability, as well as inviting an expanded view of nature and sustainability.

For horticultural therapists, beekeeping and frog rearing could enrich HTP experiences and outcomes. Though working with non-companion animals is atypical of PAPs, working with bees and frogs could provide a new treatment option. Finally, this study can help those interested in implementing similar programs at enforced residential institutions by highlighting benefits and challenges of science and sustainability programs.

5.3 Recommendations

5.3.1 Program Recommendations

I recommend the following changes to SPP programs to increase the potential of contributing to sustainability through rehabilitation. The SPP should create:

- formalized vocational programs
- formalized academic education components
- formalized cognitive-behavioral components (including horticultural and animal therapy)
- reentry programs

These are ambitious recommendations and must be implemented incrementally. Vocational training is the most effective at reducing recidivism and was requested by both offenders and staff. In other Recommendation categories: ERC Projects, Lectures, Participation, offenders and staff requested that the SPP

provide employment opportunities (e.g. training, certification, and post-release employment).

Vocational Program

The SPP can do several things to formalize vocational training. In general, certification can be achieved by working with community colleges. The offenders that I interviewed responded most enthusiastically to the apiculture program so that program may be the best one to develop. This could include finishing and implementing the apiculture curriculum that a former SPP guest scientist created. The program could be incorporated into a community college course or the offenders could be certified as Master Beekeepers, as Sweet Beginnings does with former offenders (Urban Farm, 2010).

The SSLS can be integrated into a vocational program as well. The SSLS has already, as some staff and offenders recommended, been given an overarching theme that ties into the horticulture program. This idea could be expanded to other prisons. Group gardening activities could be incorporated into the horticulture program to encourage teamwork and communication skills as well as leadership, pride and creativity (Rice et al., 1993). These programs could also include job placement once a student has served her/his sentence (Jiler, 2006, p. 27). All aspects of training should use hands-on components per offender and staff requests.

Academic Components

Part of the vocational training should be to incorporate academic education, either through community colleges or The Evergreen State College. There was interest in scientific research from offenders and staff in the apiculture program. SPP already has programs in place that provide natural places for research and academic education, benefitting both offenders and scientists, and fitting in with a goal of the SPP: to advance scientific understanding and research. Like the PAP at WCCW and the program at Fields High School (Prater & Menges, 1972), the SPP could offer academic credit for those participating in vocational training.

Cognitive-Behavioral Components

There was no direct request on the part of offenders or staff that cognitive-behavioral elements be incorporated into SPP programs. However, these programs are effective at rehabilitation and address deficits that education cannot. Since ERC projects seem to have effects closely related to those of participating in HTP or PAPs, and the effects of those programs contribute to cognitive restructuring, I recommend pursuing horticultural or animal-assisted therapy. To accomplish this change the SPP or WDOC would need to hire staff trained in cognitive-behavioral methods to create effectiveness and sustainability of the program.

Dedicated staff could tailor the program to meet goals, track effectiveness of the programs, and integrate with the offenders' counselors. Hiring these staff would emulate the activities at Riker's Island and San Francisco Jail. Additionally, SPP staff member observed that offenders have the tendency to challenge staff by creating their own projects within the gardens at one of the facilities (C. Elliott, personal communication, July 13, 2010). Part of the increased self-esteem offenders believed came from working on ERC projects came from having the freedom to make independent decisions. If allowed to exert some sense of control over their environment in this way, it could further teach the offenders team building, social, and problem-solving skills. This could be further accomplished by, for example, creating offender teams that could compete to conceive and establish gardens or study designs for research on bees or frogs.

Reentry Program

Offenders are released back into what are often poor, under-served communities. This defeats the purposes of in-prison rehabilitation programs and the inspiration of an environmental stewardship ethic among offenders. Offenders need follow-up support to help them adapt to life stresses and continue with the progress they made in rehabilitation programs (Rice & Remy, 1998). There is a drastic difference in recidivism for offenders who are employed in the first six months after their release (17% recidivism versus 41% for those not employed)

(Gillis et al., 1998), and reentry programs address this deficit by giving offenders jobs when they are released.

Just as counseling services are incorporated into the post-release Garden Project, they could also be incorporated into an SPP reentry program, particularly because offenders are also found to need continued emotional support after they are released (Pearson et al., 2002). To implement such programs the SPP would need to find additional funding which I address in the next section.

Nature and Sustainability

Something for the SPP to consider is how it defines nature and sustainability. Although the SPP refers to nature as separate from humans, in practice it demonstrates a more holistic view of nature and sustainability. On one hand, the SPP emphasizes environmental sustainability such as conservation outcomes. But through its practices it addresses more than restoring Puget Sound prairies. As demonstrated in this study through the expressions of the offenders, their sense of dignity, their education, being treated as intelligent equals, ability to participate in something that carries their imagination and capability beyond the prison, and the invitation to think about and provide solutions to environmental issues/problems are significant sustainability outcomes of the SPP and fulfill the SPP's goals/mission: to reduce the environmental, economic and human costs of prisons, in part through "helping offenders rebuild their lives" (SPP, 2010d). The SPP is in a unique and influential position to contribute to holistic views of nature and sustainability.

5.3.2 Research Recommendations

I make two recommendations for research:

- Controlled, empirical studies to isolate the effects of the SPP while in prison and to determine if the SPP reduces recidivism.
- Ongoing interviews and focus groups of staff and offenders (including types of staff who have not been interviewed before) to incorporate feedback and experiences into ongoing program development

Equal importance should be given to continuing both quantitative and qualitative analyses. For recidivism-specific, empirical studies, enlisting the help of the WSIPP, a research organization created by the Washington State Legislature, could be invaluable. With little cost to the SPP, the WSIPP could conduct rigorous studies that carry weight in legislative processes, and provide the SPP with valuable information. Ways to minimize biases in quantitative studies include setting up a control group that participates only in other programs that SPP offenders participate in, but without participation in SPP. Another study could use a control group of people on the waiting list to participate in SPP programs much as Fournier et al. (2007) did, or a control group of people not involved in SPP programs but who are exhibiting good behavior.

Because of the limited number of positions in ERC projects, and a limited number of seats and interest, it may be impossible to work with large sample sizes. It is also difficult to assign random offenders to participate in SPP activities because of security concerns with offenders with behavioral problems. The SPP could also attract offenders (note: only those exhibiting good behavior), or just have them assigned, to attend SPP events and participate in a study to see how effective the SPP would be when not preaching to the choir. Interviewing factions of staff that have not been interviewed before, including security staff, can reveal important roadblocks to and solutions for implementing SPP projects that quantitative methods cannot show (Mrazek, 1993).

Offenders in particular are more invested and are better served when their experiences and needs are identified through interviews. Interviewing offenders, including women offenders, about the unique challenges that working with the SPP may have for them personally can help serve them more effectively. Interviewing offenders who are not interested in the SPP may be able to help the SPP and prison staff understand what might get more people involved in the SPP. Having offenders, or SPP staff that the offenders trust, conduct interviews of offenders could help minimize over-reporting positive effects.

The instruments used in my study can now serve as the pilot-test for larger scale research. The ERC project survey questions in particular will need to be

improved. Other well-respected studies could be located and used to provide a benchmark. Examples include the Human-Animal Interaction Scale (to help understand the details of offender involvement with animals), and the Social Skills Inventory (SSI) (to measure basic emotional and communication skills) that were used in the Fournier et al. (2007) study.

5.3.3 Funding Recommendations

While DOC has provided the most funding for the SPP, this resource is very limited, especially in this time of economic uncertainty. The SPP can pursue several options to secure additional funds:

- Foundations and agencies
- Fundraising events
- Business competition events
- Selling products from reentry programs

The first is approaching foundations, such as those Sweet Beginnings used: The Boeing Company, W.K. Kellogg Foundation, Ben & Jerry's Foundation (North Lawndale Employment Network, 2010). Other options include approaching horticultural and apiculture societies, local counties and cities, private donors, and business competitions, such as the Social Impact Exchange Business Plan Competition. Fundraising events are another viable option for fundraising. These could include an annual gala dinner where attendees purchase tickets and bid on auction items, or a "tea," such as the one that Sweet Beginnings holds (North Lawndale Employment Network, 2010). Finally, another avenue is to sell the products that would be produced in the reentry programs (i.e. honey and beeswax products; and produce). Local companies or organizations could also hire the services of offenders who could rent out beehives.

5.4 Conclusions

The SPP holds considerable promise as a rehabilitative strategy and that the SPP appears to share characteristics with successful rehabilitation programs. My data also indicated that science and sustainability education increases an

environmental stewardship ethic and provides offenders with a greater quality of life. Given the possible benefits for a wide variety of stakeholders and a good public image in the media, it is advisable to continue the SPP and conduct more rigorous qualitative and quantitative studies to determine the SPP's effectiveness. This thesis was written during a time of increasing budget cuts throughout the U.S. and in Washington State, making it more difficult to conduct studies and support SPP activities. As more funding eventually becomes available and if the SPP is shown in more rigorous studies to be effective, the SPP's programs should be expanded within the WDOC and possibly to other enforced residential institutions. Programs like the SPP have the potential to improve the quality of people's lives and those of non-human organisms. In the process the SPP may also broaden definitions of sustainability, nature, and the environment.

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APPENDIX A: OFFENDER AND STAFF INTERVIEW GUIDES

Sustainable Prisons Project: Offender Interview Guide

Introductions

- Evaluation of the Sustainable Prisons Program; Look for ways to improve the program.
- Don't have to participate in the evaluation; this is our way of learning how the program works.
- Group interview:
 - I will ask questions and ask you all to provide input.
 - Do not need to raise hands but try not to talk over each other. We are recording the interview, so minimizing background noise is important.
 - You do not need to agree. We would like to hear different perspectives.
 - Using a spider mic to record answers.
- Any questions?
- Please introduce yourselves so that I know your names (first name only)

I'd like to spend time hearing from you about any lectures that you have attended and any of the sustainable practices or science/conservation programs in which you have participated.

Lectures

First, let's talk about your involvement in any of the Sustainable Prisons activities here at Stafford Creek.

1. Have you attended any lectures?
Lectures: prairie ecology, native plant restoration, beekeeping, recycled products design, forest ecology, arboriculture, organic gardening, alternative energy
 - a. How many? Which ones?
 - b. What led you to decide to attend in the lectures?
 - c. Are you glad that you attended?
 - d. Are there things that could have made the lectures more interesting or useful for you? What?
 - e. What did you get out of attending the lectures?
PROBE:
 - Did you learn something that you didn't know before the lecture? What?
 - Is there anything that you felt differently about after leaving the lecture (PROBE: the environment, the importance of sustainable practices, etc.)? What?

- Is there anything that you think that you have done differently as a result of attending a lecture (e.g. making sure to recycle, participating in a sustainable practices program, etc.)? What?
- Do you think that attending these types of lectures will help you when you leave prison? How?

Sustainable Practices Programs

Now, lets talk about the sustainable practices programs.

2. Are you involved in any of the sustainable practices programs (The HUB)?
Sustainable Practices: recycling, composting, organic gardening, horticulture greenhouse, beekeeping, water & energy conservation, motorless lawn mowing, bicycle restoration, K-9 Rescue program

- a. Which programs have you been involved in?
- b. How are you involved in the program?
- c. What made you decide to get involved?
- d. Do you think that undertaking these programs are important for the prison community? Why?
- f. What do you get out of participating in these programs?

PROBE:

- Are there opportunities to learn? What?
- Have any of your opinions about the environment or the importance of sustainable practices changed since you began participating in the program? If so, how have they changed?
- Since you began participating in the program have you noticed any changes in your interests in the environment or your behavior towards the environment?
- Do you think that participating in this program will help you when you leave prison? How?

Science Research/Conservation Programs

Now let's talk about the *prairie plant and beekeeping* programs.

3. Have you been involved in the science research/conservation programs?
Scientific Research/Conservation Programs: Native plant restoration, Beekeeping training/research

- a. Which programs?
- b. What is/was your role in the project?
- c. What made you decide to get involved?
- e. Do you think that undertaking these programs are important for the prison community? Why?
- g. What do you get out of participating in these programs?

PROBE:

- Are there opportunities to learn? What?

- Have any of your opinions about the environment or the importance of sustainable practices changed since you began participating in the program? If so, how have they changed?
- Since you began participating in the program have you noticed any changes in your interests in the environment or your behavior towards the environment?
- Do you think that participating in this program will help you when you leave prison? How?

Future Directions

Lets' talk about some of your ideas for new components of the *Sustainable Prisons* project.

4. First, do you have any ideas for how the staff could get more offenders involved in these programs (the lectures, sustainable programs, or conservation projects)?
5. How could the programs be improved to...
...better support your understanding of the environment and sustainable practices
...provide you with information and skills that will be helpful when you leave the prison?
6. Are there any new programs that you think could be added to complement the lecture series, sustainable practices, and conservation programs?

Sustainable Prisons Project: Staff Interview Guide

Introductions

- Evaluation of the Sustainable Prisons Program; Look for ways to improve the program.
- Don't have to participate in the evaluation; this is our way of learning how the program works.
- Using a digital recorder to record answers.
- Anonymous
- Any questions?

Program Involvement/Feedback

7. Have you attended any lectures?
Stafford Creek Lectures: prairie ecology, native plant restoration, beekeeping, recycled products design, forest ecology, arboriculture, organic gardening, alternative energy
Cedar Creek Lectures: amphibian ecology/conservation, beekeeping, organic gardening and composting.
h. How many? Which ones?

- i. How engaged did you find the offenders to be?
 - j. Do you have any feedback about the format or content of the lectures?
 - k. Have you noticed any changes among the prisoners and/or officers during the lecture series?
PROBE: knowledge, attitudes, & behaviors related to the environment
 - l. What effect, if any, do you think the lectures have on the prison community?
PROBE: Prisoner relationships? Prisoner-officer relationships?
8. Are you involved in any of the sustainable practices programs?
Stafford Creek Sustainable Practices (the HUB): recycling, composting, organic gardening, horticulture greenhouse, beekeeping, water & energy conservation, motorless lawn mowing, bicycle restoration, K-9 Rescue program
Cedar Creek Sustainable Practices: recycling, composting, organic gardening, horticulture greenhouse, beekeeping, water catchment basins, low-flush toilets, energy conservation, field crews with Department of Natural Resources (e.g. tree planting, wildland firefighting)
- f. Which programs have you been involved in?
 - g. How are you involved in the program?
 - h. Who participates in these programs?
PROBE: How are they selected? Why do you think that they choose to participate?
 - i. Do you think that undertaking these programs are important for the prison community? Why?
 - j. Have you noticed any changes among the prisoners and/or officers during the lecture series?
PROBE: knowledge, attitudes, & behaviors related to the environment
 - k. What effect, if any, do you think the lectures have on the prison community?
PROBE: Prisoner relationships? Prisoner-officer relationships?
 - l. How does participation (and the outcomes of participation) in the sustainability-related programs compare to the other programs?
9. Have you been involved in the science research/conservation programs?
Stafford Creek Scientific Research/Conservation Programs: Native plant restoration, Beekeeping training/research
Cedar Creek Scientific Research/Conservation Programs: Captive rearing of endangered frogs, Beekeeping training/research
- a. Which programs?
 - b. What is/was your role in the project?
 - c. Do you think that undertaking these programs is important for the prison community? Why?

- d. Have you noticed any changes among the prisoners and/or officers who participate in these programs?
PROBE: knowledge, attitudes, behaviors & skills related to the environment
- e. What effect, if any, do you think these programs have on the prison community (i.e. relationships between offenders and officers).

Successes & Challenges

- 10. Across the programs that we have discussed, what have been some of the more successful aspects of the programs? [Provide examples]
PROBE: What are important features/considerations to make these types of programs work in the prison setting?
- 11. What challenges have you faced in implementing/working with the programs?
PROBE: Is there anything that you have done that works well to address these challenges?

Goals/for Sustainable Prisons/New Directions

Looking ahead...

- 12. How would you know that that the sustainable prisons program is working here? What would success look like?
Probe: Specifically, with regard to...
Prisoner knowledge, attitudes, behaviors, & skills
Prison Community
- 13. Where do you think that you currently are on the pathway to getting there (for each area of success identified)? What steps do you see for getting there?
What needs to happen first?
- 14. What are the greatest challenges that you see in moving in that direction?
- 15. Do you currently see an opportunities to support these efforts?
- 16. Are there any new program components that you would like to see added to the group of Sustainable Prisons programs (new directions in which the program should head)?

APPENDIX B: ERC PROJECTS AND SSLS SURVEY QUESTIONS

SSLS surveys: Section C

C. Your opinion. Please circle **one** number for each statement.

	Strongly Disagree ⊗	Disagree	Agree	Strongly Agree ☺	Don't Know
1. When I have a choice, I prefer to spend time with my fellow offenders rather than alone.	1	2	3	4	0
2. My relationships with fellow offenders are important and meaningful to me.	1	2	3	4	0
3. I would suffer if I didn't have interactions/relationships with other offenders.	1	2	3	4	0
4. I feel good about the job and activities I have at the facility.	1	2	3	4	0
5. I trust some of the other offenders.	1	2	3	4	0
6. I feel like my contributions to the community are appreciated by others.	1	2	3	4	0

SSLS surveys: Section B

B. Your Interests. We would like to know about your interests before attending today's lectures and now that you have attended the lectures. Please circle one number for how you felt about each statement before the lectures and one number for how you feel about each statement after the lectures.

BEFORE the Lectures					How likely were you/ will you be to...	AFTER the Lectures				
Very unlikely	Unlikely	Neutral	Likely	Very Likely		Very unlikely	Unlikely	Neutral	Likely	Very Likely
1	2	3	4	5	Seek information on the environment?	1	2	3	4	5
1	2	3	4	5	Seek information on sustainability and/or climate change?	1	2	3	4	5
1	2	3	4	5	Talk to another offender about issues related to the environment?	1	2	3	4	5
1	2	3	4	5	Talk to another offender about sustainability and/or climate change?	1	2	3	4	5