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Understanding Utah's Native Plant Market: Coordinating Public and Private Interest

Virginia Harding Hooper
Utah State University

UNDERSTANDING UTAH'S NATIVE PLANT MARKET:

COORDINATING PUBLIC AND PRIVATE INTEREST

by

Virginia Harding Hooper

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ABSTRACT

Understanding Utah's Native Plant Market:

Coordinating Public and Private Interest

by

Virginia Harding Hooper, Master of Landscape Architecture

Utah State University, 2003

Major Professor: Dr. Joanna Endter-Wada
Department: Natural Resource and Environmental Policy Program

Committee Co-Chair: Craig W. Johnson
Department: Landscape Architecture and Environmental Planning

Changes in Lone Peak Conservation Nursery customer profiles cause state nursery leaders to question what their products are being used for and how trends in native plant use are changing the market for Utah native plants. The Utah native plant market is changing as interest in native plants is expanding to meet new conservation objectives, oftentimes in urban settings. This newer demand for native plants appears to be motivated by current changes in urban conservation behavior, continued population growth in the arid West, scarcity of water resources, the increasing appreciation for indigenous plant aesthetics, and concern for bio-diversity. A survey of 2001 American Society of Landscape Architecture (ASLA) Utah Chapter members sponsored by Lone Peak Conservation Nursery, a state-mandated nursery for the supply of conservation

plants to Utah, conveys landscape professionals' philosophical base for native plant choice, experience of native plant use, information needs, desired products and services, and general perception of native plant market and demand in Utah. Landscape architects at the forefront of these trends and the profession have the opportunity to be even more actively engaged in integrating native plant use across the wild land to urban landscape spectrum while collaborating with other industry leaders.

Authors report on the significant findings from the Lone Peak Conservation Nursery Native Plant Study to explain the complexity of native plant supply and demand in changing Utah markets. Increase in urban water conservation and aesthetic use of native plants and seeming instability in traditional restoration markets force local growers to face challenging decisions about plant production and business strategies. Business-driven decisions of suppliers may affect the availability of source-identified native plant products, and raises the question, "How native is native?" Current dilemmas in the Utah native plant market are identified as market pressures tend to generalize an ecologically specialized natural resource product. Continued research and industry collaboration is needed to better connect supply and demand to better balance the needs of private and public sector market actors sharing native plant resources.

(126 pages)

ACKNOWLEDGMENTS

Researching the native plant market here in Utah has been a privilege and an adventure. I feel that I have come full circle in my studies and life experiences in valuing the use and importance of native plants. Cheers to this serendipitous cast!

Thank you, Stan and Lynn for introducing me to the fascinating world of land management and environmental planning as a young seed picker. Thank you, Liz and Lizzie for eight exciting years as a florist and green house apprentice in retail plant production and sales. Gratitude goes to the Arnold Arboretum staff for trying to raise a Utah *fraxinous anomale* from seed to tree. Although I'm sad you are without the poor specimen in your collection after twenty years of care, I hope you all get to visit Utah and see the real "home boy" thriving in several of our national and state parks.

I couldn't have done this project without the foresight of Lone Peak Conservation Nursery leaders Glen and Edie, who care enough about what they do to share it with others, and to the U.S. Department of Agriculture for funding the research.

Many thanks to committee members, Karen Hanna, Roger Kjelgren, and Nicole McCoy, for lending their time, expertise, and professional support. Special thanks to Craig Johnson for his willingness to co-pilot me in my research and for the motivation his teaching adds to my desire to effectively and responsibly use planting materials that keep "the circle" going. Last but not least, I express much gratitude to Dr. Joanna Endter-Wada for her cunning, support, and enthusiasm as she helped make this one of the best academic experiences of my life.

~ Virginia Harding Hooper

PREFACE

This manuscript has been written according to the Utah State University *Publication Guide for Graduate Students* for the multiple-paper thesis format. Contents include two stand-alone articles or chapters addressing the dilemmas of native plant users and the native plant market a general. The first article, titled "Native Plant Use in Utah: Attitudes and Practices of Landscape Professionals" or Chapter 2, was written for possible publication in *Landscape Journal,* which is edited in cooperation and published by the University of Wisconsin Press and the Council of Educators in Landscape Architecture and the Department of Landscape Architecture at University of Oregon. Chapter 3 titled, "How 'Native' is Native?: Dilemmas in Utah's Changing Native Plant Market," discusses market pressures stemming from changes native plant demand, and is written according to *Native Plants Journal* publishing guidelines for the University of Idaho in Moscow, Idaho. Works Cited and Appendices in this document will apply to both articles following suggested guidelines for the thesis format. Chapters 2 and 3 are coauthored by Joanna Endter-Wada and Craig W. Johnson.

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INTRODUCTION

Background - Study Context

Little did I know that this adventure began when I was a young teenager looking for summer fun money. Several of my uncles, being educated in various natural resource fields, allowed me to accompany them on seed picking excursions for native species needed by the Bureau of Land Management for lands burned by wildfires. I found the work tedious and hot, and cannot say that I shared the same appreciation for Sweetvetch then as I do now, but I was impressed by the economic and ecological value those little dry seeds had for me and the unique beauty of the Utah landscapes in which they were found.

Utah plant species diversity ranks eighth highest in the nation (Stein 2002). This phenomenon is due, in large part, to Utah's political boundaries which overlap into four major ecological zones in the Western United States, namely, the Intermountain West, the Great Basin, the Colorado Plateau, and the Southwest Desert. The state's location, combined with high growth rates and spreading development, creates unique and challenging opportunities for landscape professionals and Utah growers involved in the distribution and use of native plant species. Native plant species have long been valued for their beauty and adaptation to regional environments. Native plants have proven useful for a wide range of conservation practices, including the ecological restoration or rehabilitation of disturbed lands.

Traditionally, Utah ranchers and farmers have used native plant materials for the construction of windbreaks and snow shelters to increase crop production and livestock survivability in rural areas. Today, private and public land managers use native species to rehabilitate lands disturbed by fires, soil erosion, mining, intense cattle grazing, and noxious weed invasion to restore the ecological function of important wetland, riparian, and wildlife habitats.

State support of rural land use and the needs of federal land management agencies led state authorities and federal agencies to coordinate conservation efforts. Utah's conservation program began in the 1920s under the Clarke-McNary Act which created a partnership between the United States Forest Service and the State of Utah. Through this partnership, the state conservation nursery was established with the purpose of growing important native species used for conservation land practices on private, county and state lands. Lone Peak Conservation Nursery was first established in northern Utah where it worked closely with Utah State University, the state's land grant university located in Logan, Utah. The nursery moved to Draper, Utah in the 1970s where it currently occupies 35 acres of land and grows bare root or seedling stock for the conservation needs of public land management agencies and private land owners. Today the nursery carries over 90 different species of trees, shrubs, grasses and wetland plants, and other native plant species can which can be custom grown there (Zeidler 2002).

At the 2000 Native Seed Symposium held in Boise, Idaho, many native plant and seed suppliers voiced concern over the seemingly unstable market demand for their products. Many expressed frustration in dealing with the inefficiency of demand swings

which often leave many growers with surplus stock or lost opportunity to sell volumes of certain species in sudden unexpected demand. The demand for native plant materials used in conservation can be unstable due to the nature of restoration needs based on unpredictable fire occurrences, budget-cycle availability of public agencies, and the nation-wide decline of agriculturally related land use. These factors encouraged industry discussion on the need to reduce production speculation through the creation of alternative native plant niche markets and the restructuring of contract growing procedures.

Problem Statement

Current changes in urban conservation behavior, continued population growth in the arid West, scarcity of water resources, the increasing appreciation for indigenous plant aesthetics, and concern for bio-diversity lead Lone Peak Conservation Nursery managers to believe there may be emerging niches in the market for native plants not used solely for traditional conservation purposes. Emerging segments in native plant demand may hedge the risks of traditionally unstable native plant production tied to forest fire occurrence, budget cycles, failed growing contracts, and bid speculation. Investigation of native plant use and trends in supply and demand hope to describe native plant use among various user groups, and explain the characteristics of market trends important to Lone Peak Conservation managers in the process of re-thinking their role as a state conservation nursery while preparing their next five year plan.

Purpose of the Study

Changes in the profile of Lone Peak Conservation Nursery customers support the nursery staff's guess that interest in native plant use is expanding to meet the needs of an evolving market (refer to Table 1 to view trends in Lone Peak Conservation Nursery sales). The percent of sales within in each customer group varies from year to year. The percentage of annual sales to state and federal agencies shows significant swings, exemplifying the instability of market demand expressed by attendees of the 2001 Native Seed Symposium. In addition, the percentage of public sector sales dropped from 58% in 1992 to 36% in 2000, while sales to private sector customers rose from 41% in 1992 to 64% in 2000. These changes signal a shift in sales from the public to private sector.

Study Objectives

In response to these changes, Lone Peak Conservation Nursery applied for a USDA grant to study the market for native plants in Utah with the following objectives: to analyze the growth in demand for native plants used to meet conservation and landscaping purposes; to clarify the role of federal and state nurseries in developing markets for native plants; to determine if enough supply exists to adequately serve apparent growing demand for native plant materials; and, to examine current market trends which may help reduce risk and market uncertainty.

Glen Beagle (Nursery Director) and Eddie Trimmer (Project Director) formed an advisory committee to help direct the study of the Utah native plant market. The following people serve on that advisory Committee: John Fairchild from the Utah

Division of Wildlife Resources; Roger Kjelgren from Utah State University's Department of Plants, Soils and Biometerology; Tom Landis, state nursery specialist from J.H. Stone Nursery operated by the US Forest Service in Central Point Oregon; Bruce Ratzlaff from the Utah Office of Energy; Nancy Shaw from the Rocky Mountain Research Station in Provo, Utah; Steve Caicco, plant ecologist from the Bureau of Land Management Seed Bank in Boise, Idaho; Barbara Bellio from the U.S. Bureau of Land Management in Denver, Colorado and Diane Jones from the Utah Landscape Nursery Association.

Literature Review

In preparation to fulfill study objectives, several pieces of literature related to the study objectives were reviewed. These works fall into three categories. The first category includes literature on how to use native plants in regional ecosystems (Albee et al. 1987, Brodie 1996). Recently Mee, Barnes, Johnson, Kjelgren and Sutton have compiled much needed data into a reference book describing Utah native plants, their eco-associations, care requirements, growing traits and landscape applications.

A second category discusses the philosophy of when and where native plants should be used. Many authors of these works discuss the application of native plantings in urban areas. Such topics of study include blending urban interfaces and wildlands with native plants (Henry, Hosack, Johnson, Rol, and Bentrup 1999; Howe, McMahon and Probst 1997; Bush 2000, Knopf et. al. 2002; Woodson 2001), the aesthetic substitutability of native and low water use plants in residential design (Kratz 2002; Phillips 1995; Spranger 1993), planting native and adapted species to conserve water (Envision Utah

2000; Knopf 1991; Proctor and Denver Water 1996), landscaping to improve wildlife habitat (Anderson 1996; Nordstrom 1991; U.S. Department of Agriculture 2001), and the need for bio-diversity in landscape design (Cowan and Van Der Ryn. 1996). Others in this category discuss the need to define the appropriate use of native plants for habitat restoration according to time and place (Gobster and Hull 2000), ambiguities in human perceptions of nature (Hull and Robertson 2002), and the importance of using native plants to create a unique sense of place and personal ties to nature (Brenzel 1997; Johnson 1998; Lowry 1999; Springer 2001; Yee 1984).

Other literature indicates historical interest in regional native plant use. In an unpublished history of early Utah landscape designers done by students in the Landscape Architecture and Environmental Planning Department at Utah State, Laval Morris, Kenji Shiozawa, and Leon Frehner, used native plants and stone to reflect a "uniquely Utahn" aesthetic in their work. To their lament, native plants were not found on the general plant market and they had to dig them up from the wild (Shiozawa 1987, pp.11).

Another pioneer using native plants, Paul Rokich, was known as the "Johnny Appleseed" for disturbed mining lands. Rokich saw the need to "fix" soil erosion and nutrient leaching problems caused by copper mining activity on the east facing side of the Oquirrh Mountains. In his youth, Rokich would sneak past the guards at night onto Kennecott Mining Company's property to plant trees, seed native grasses, shrubs and flowers. The plants he needed were also unavailable from local nurseries, and he dug up plants or collected seed from wild land sources to do his work (Kennecott Utah Copper Government and Public Affairs Department 2001).

The third category of literature describes the economic components of similar native plant and specialty markets (Potts et. al. 2002; Ward 2002) and various methods for assessing costs and benefits in restoration projects (Freeman 1993; Griffith et. al. 2001; Gwartney et. al. 1990; Johnson 1984). Some topics are related indirectly such as the nature of cooperation and competition in the sea urchin fishing market (Lauer 2001), while others such as Pott's study of the Colorado market for native plants used in restoration and urban landscaping trends in neighboring states (2002).

Study Methods

Dr. Joanna Endter-Wada from the Utah State University Natural Resource and Environmental Policy Program (NREPP); Judy Kurtzman, NREPP project leader; and I were asked to conduct the research for the Utah Native Plant Market Study. Together we decided to assess native plant demand through a two-part study of sophisticated end-users of native plant materials in the state of Utah. For the first part of the study, we surveyed all current members of the Utah Chapter of the American Society of Landscape Architects (see survey questionnaire in Appendix 1).

The Utah Chapter of ASLA was surveyed on the assumption that it is a sophisticated group of plant buyers and users, and thus, represents the leading edge of plant market demand trends. Also, Utah ASLA members are a diverse group of landscape professionals working in public and private sectors of the economy. They have knowledge of and experience with plant materials and use them to meet various landscaping objectives (a trait which gives us an indication of native plant versus non-

native plant choice factors). In addition, membership in the association comprised an ideal sample size that fit the constraints of available funding and time.

The survey titled, Native Plant Use in Utah: Attitudes and Practices of Landscape Professionals contains five sections relating to respondents' professional background, philosophy of native plant use, experience using native plants, experience obtaining specific native plant products and services, and views on market demand trends and the appropriate role of the state conservation nursery. The term "landscape professionals" mentioned in the survey title reflects the varied nature of the landscape architect profession and is inclusive of people who are working in related landscape fields such as landscape design, landscape contracting, and planning.

The eight page self-completion questionnaire was distributed to ASLA members at their annual chapter conference in Salt Lake City during April 2002, with the remainder of the surveys mailed out to those members we were not contacted personally at the annual meeting. We followed up with two additional mailings over the next five weeks following the Dillman method (2000). Eventually, a total of 136 out of 248 ASLA chapter members participated in the survey, giving us a response rate of close to 55%, which was good considering the surveys were mailed between mid-April and the first week of June, a very busy season for the landscaping industry. Survey results were coded and the data were analyzed using Statistical Package for the Social Sciences (SPSS).

For the second phase of the study, we conducted face-to-face interviews with fifteen selected customers of Lone Peak Conservation Nursery. These customers represented all segments of the native plant market and included 5 native plant growers, 2

native plant wholesalers, 4 restoration specialists working for public and private land management agencies, 1 roadside maintenance specialist, 2 landscape contractors, and a collective group of rural residents in need of conservation plant materials from the state (see interview protocol in Appendix 3).

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CHAPTER 2[1]

NATIVE PLANT USE IN UTAH: ATTITUDES AND PRACTICES OF LANDSCAPE PROFESSIONALS

Introduction

Utah species diversity ranks eighth highest in the nation (Stein 2002; Albee Schultz and Goodrich 1988). This phenomenon is due, in large part, to Utah's political boundaries which overlap into four major ecological zones in the Western United States, namely the Rocky Mountains, the Great Basin, the Colorado Plateau, and the Southwest Desert. The state's location, combined with high population growth rates and expanding development, creates distinctive and challenging opportunities for landscape architects in Utah to use a variety of unique plant species.

Native plant species have long been valued for their beauty and adaptation to regional environments. Native plants are useful for a wide range of conservation practices, including ecological restoration and rehabilitation of disturbed lands. Traditionally, Utah ranchers and farmers have used native plant materials for the construction of windbreaks and snow shelters to increase crop production and livestock survivability in rural areas. Today, private and public land managers use native species to rehabilitate lands disturbed by fires, soil erosion, mining, intense cattle grazing, and noxious weed invasion and to restore the ecological function of important wetland, riparian, and wildlife habitats.

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[1]This chapter is coauthored by Joanna Endter Wada and Craig Johnson.

Interest in native plants is expanding and they are increasingly used to meet new conservation objectives, oftentimes in urban settings. This newer demand for native plants appears to be motivated by current changes in urban conservation behavior, continued population growth in the arid West, scarcity of water resources, the increasing appreciation for indigenous plant aesthetics, and concern for bio-diversity. Some landscape architects have been at the forefront of these trends and the profession has the opportunity to be even more actively engaged in integrating native plant use across the wildland to urban landscape spectrum.

Several notable landscape architects were involved historically in regional native plant use. An unpublished interview of Kenji Shiozawa, an early Utah landscape designer decribes how Laval Morris, Kenji Shiozawa, and Leon Frehner used native plants and stone to reflect a "uniquely Utahn" aesthetic in their work. The study notes that these pioneering designers lamented the fact that native plants were not found on the general plant market and they had to dig them up in the wild (Shiozawa 1987, pp. 11).

Another pioneer user of native plants, Paul Rokich, was known as the "Johnny Appleseed" for disturbed mining lands. Rokich saw the need to "fix" soil erosion and nutrient leaching problems caused by copper mining activity on the east facing side of Utah's Oquirrh Mountains. In his youth, Rokich would sneak past the guards at night onto Kennecott Mining Company's property to plant trees and to seed native grasses, shrubs and flowers. The plants he needed were also unavailable from local nurseries, and he dug up plants or collected seed from wild land sources to do his work (Kennecott Utah Copper 2001).

As the experience of these landscape architects indicates, commercial markets in native plants are relatively recent. In the past, native plants used in rural land conservation and wildland restoration were grown primarily in publicly-funded state and federal nurseries. Utah's conservation program began in the 1920s under the Clarke-McNary Act which created a partnership between the United States Forest Service and the State of Utah. Through this partnership, the state conservation nursery was established with the purpose of growing plant species needed for public and private conservation efforts engaged in mostly by federal and state land management agencies and rural farmers and ranchers. Lone Peak Conservation Nursery was first located in Logan, Utah where it worked closely with Utah State University, the state's land grant university. The nursery moved to Draper, Utah in the 1970s where it currently occupies 35 acres of land and grows mostly bare root or seedling stock for the conservation needs of public land management agencies and private land owners. Today the nursery carries over 90 different species of trees, shrubs, grasses and wetland plants, and other native plant species can be custom grown there (Zeidler 2002). The state nursery is part of the Utah Division of Forestry, Fire and State Lands.

The market for native plants is undergoing significant change. One indication that demand is changing comes from a significant shift in the profile of Lone Peak Conservation Nursery customers that has occurred in recent years (refer to Table 1 to view trends in Lone Peak Conservation Nursery sales). While the percent of sales within each customer group varies from year to year, the percentage of annual sales to state and federal agencies showed the most significant swings, exemplifying the instability of

market demand in that sector. The nursery has seen a general shift in sales from the public sector to the private sector, with the percentage of public sector sales declining from 58% in 1992 to 36% in 2000 and the sales to private sector customers increasing from 41% in 1992 to 64% in 2000 (see Table 2-1). These trends lead Lone Peak Conservation Nursery managers to believe there may be emerging niches in the market for native plants not used solely for traditional conservation purposes.

Table 2-1.
Lone Peak Conservation Nursery Customer Break-down by Public and Private Sectors

Customer Breakdown by % of Total Sales (figures rounded to the nearest whole number)	1992	1993	1994	1995	1996	1997	1998	1999	2000
Federal Agencies	35%	40%	37%	18%	19%	6%	4%	9%	22%
State Agencies & Local Government	23%	29%	21%	37%	40%	48%	43%	27%	14%
Green Industry	12%	8%	4%	5%	17%	25%	18%	35%	25%
Private Land Owners	29%	23%	38%	40%	24%	21%	35%	29%	39%

In addition to the newly emerging demand for native plants, private growers and nurseries are increasingly entering the market to supply native plants. However, these suppliers face challenges as they attempt to design business strategies that will be successful in the context of a native plant market driven by the varying needs of an increasingly diverse group of end users. At the 2001 Native Seed Symposium held in Boise, Idaho, many native plant and seed suppliers voiced concern over the seemingly unstable market demand for their products. Many attendees expressed frustration in

dealing with the inefficiency of demand swings, which often leave many growers with surplus stock, or with lost opportunity to sell large volumes of certain species for which a sudden unexpected demand arises. The demand for native plant materials used in conservation and restoration can be unstable due to unpredictable fire occurrences, budget-cycles and contracting procedures of public agencies, and the nation-wide decline of agriculturally related land use. These factors encouraged industry discussion at the symposium about the need to reduce production speculation through the creation of alternative native plant niche markets and the restructuring of contract growing procedures.

As the oldest and largest supplier of native plants in Utah, Lone Peak Conservation Nursery is confronting the same demand uncertainties experienced by private native plant growers. However, it faces additional constraints as a public entity with a legislated mandate to produce native plants for conservation purposes and a perceived need not to infringe on private market opportunities. The nursery is expected to recover most of its operating costs through plant sales, particularly in light of tight state budgets in recent years, but has sometimes suffered financial losses after growing specific plants to meet projected restoration needs that did not materialize. Lone Peak Conservation Nursery's managers are wondering if changes occurring in the native plant market will provide outlets for stock surpluses that will help alleviate some of their financial risks and want to better understand emerging demands and the needs of end users.

Utah Native Plant Market Study

In an effort to better understand the changes occurring in the Utah native plant market, Lone Peak Conservation Nursery applied for a USDA grant to conduct research that would provide public information useful to various entities interested in promoting the use of native plants. The study was funded and designed to meet the following objectives: to analyze the growth in demand for native plants used to meet conservation and landscaping purposes; to clarify the role of federal and state nurseries in developing markets for native plants; to determine if enough supply exists to adequately serve the apparently growing demand for native plant materials; and, to examine current market trends which may help reduce risk and market uncertainty for native plant suppliers.

Most of the native plant research focuses on ecological and aesthetic issues related to the use of native plants. Describing native plants and how to use them in regional ecosystems is one important theme in the literature (Brodie 1996; Bush 2000). Recently, Mee et al. (2002) have compiled much needed data into a reference book, "Water Wise: Native Plants for Intermountain Landscapes" describing Utah native plants, their eco-associations, care requirements, growing traits and landscape applications.

Another emphasis in the literature is on the philosophy related to when and where native plants should be used, particularly in relation to defining appropriate uses of native plants for habitat restoration according to time and place (Gobster and Hull 2000), understanding ambiguities in human perceptions of nature (Hull and Robertson 2001), and using native plants to create a unique sense of place and personal ties to nature (Brenzel 1997; Johnson 1998; Lowry 1999; Springer 2001; Woodson 2001; Yee 1984).

Other issues include blending urban interfaces and wild lands with native plants (Henry, Hosack, Johnson, Rol, and Bentrup 1999; Howe, McMahon, and Probst 1997; Knopf et al. 2002), the aesthetic substitutability of native and low water use plants in residential design (Kratz 2002; Phillips 1995; Spranger 1993), planting native and adapted species to conserve water (Envision Utah 2000; Knopf 1991; Proctor and Denver Water 1996), landscaping to improve wildlife habitat (Anderson 1996; Natural Resources Conservation Service 2001; Nordstrom 1991; U.S. Department of Agriculture 2001), and the need for bio-diversity in landscape design (Cowan and Van Der Ryn 1996).

Less research has been conducted on the economics of native plant use and native plant markets. Various methods have been examined for assessing costs and benefits in restoration projects (Freeman 1993; Griffith and McCoy 2001; Gwartney and Stroup 1990; Johnson 1984; Ward 2002). Most relevant to the focus of this study is the recent work by Potts et al. (2002) on the Colorado market for native plants and their use in restoration and urban landscaping trends in neighboring states.

Upon initiating the Utah Native Plant Market Study, Glen Beagle (nursery director) and Eddie Trimmer (project director) formed an Advisory Committee to help guide the research. The following people serve on that Advisory Committee: John Fairchild from the Utah Division of Wildlife Resources; Dr. Roger Kjelgren from Utah State University's Department of Plants, Soils, and Biometerology; Tom Landis, state nursery specialist from J.H. Stone Nursery operated by the US Forest Service in Central Point, Oregon; Bruce Ratzlaff from the Utah Office of Energy; Nancy Shaw from the Rocky Mountain Research Station in Provo, Utah; Steve Caicco, plant ecologist from the

Bureau of Land Management Seed Bank in Boise, Idaho; Barbara Bellio from the U.S. Bureau of Land Management in Denver, Colorado; and, Diane Jones from the Utah Landscape Nursery Association.

Lone Peak Conservation Nursery contracted with the Natural Resource and Environmental Policy Program at Utah State University to conduct the research. The research team, which included Dr. Joanna Endter-Wada, Virginia Harding, and Judith Kurtzman, decided to assess market trends through a two-part study that gathered information from buyers, sellers, and end-users of native plant materials. The first part of the study consisted of surveying all current members of the Utah Chapter of the American Society of Landscape Architects (see survey questionnaire in Appendix 1). The second part of the study involved conducting in-depth, face-to-face interviews with fifteen customers of Lone Peak Conservation Nursery selected for their involvement in and knowledge of the native plant industry. These customers represented all segments of the native plant market and included 5 native plant growers, 2 native plant wholesalers, 4 restoration specialists working for public and private land management agencies, 1 roadside maintenance specialist, 2 landscape contractors, and a collective group of rural residents in need of conservation plant materials from the state (see interview protocol in Appendix 3). This article reports on the significant findings of the ASLA landscape architect survey and incorporates some relevant interview data to explain trends in native plant use in Utah.

Survey of ASLA Utah Chapter Members

Members of the Utah Chapter of the American Society of Landscape Architects (ASLA) were surveyed on the assumption that they are a sophisticated group of plant buyers and users and, thus, represent the leading edge of native plant market demand trends. Also, Utah ASLA members are a diverse group of landscape professionals working in public and private sectors of the economy. They have knowledge of and experience with a wide variety of plant materials and use them to meet various landscaping objectives, thus their use of native plants provides useful information on native plant versus non-native plant choice factors. In addition, membership in the association comprised an ideal sample size that fit the constraints of available funding and time.

The survey was titled *Native Plant Use in Utah: Attitudes and Practices of Landscape Professionals*. The survey contained five sections relating to respondents' professional background, philosophy of native plant use, experience using native plants, experience obtaining specific native plant products and services, and views on market demand trends and the appropriate role of the state conservation nursery. The term "landscape professionals" mentioned in the survey title reflects the varied nature of the landscape architect profession and is inclusive of people who are working in related landscape fields such as landscape design, landscape contracting, and planning.

The eight page self-completion questionnaire was distributed to ASLA members at the annual Utah chapter conference in Salt Lake City during April 2002, with the remainder of the surveys mailed out to those members who were not contacted personally

at the annual meeting. We followed up with two additional mailings over the next five weeks following the Dillman method (Dillman 2000). The surveys were returned by mail. Eventually, a total of 136 out of 248 members of the Utah Chapter of ASLA participated in the survey, giving us a response rate of close to 55%, which was quite good given the survey was administered between mid-April and the first week of June, a very busy season for the landscaping industry. Survey results were coded and the data were analyzed using Statistical Package for the Social Sciences (SPSS).

The survey respondents, as we had hoped, appear to represent a well trained and experienced mix of plant end-users working in various sectors of the economy and practicing the landscape profession throughout Utah. Survey respondents have worked in the profession an average of 17 years, including an average of 13 years working in Utah. The majority hold a bachelor's (81%) or master's degree in landscape architecture (18%), or a related field. Forty-nine percent of the ASLA respondents are certified landscape architects who have passed the Landscape Architecture Licensing Exam (LARE). The most common type of work specialty shared by ALSA respondents is garden design, followed closely by recreational and public or institutional design. One fifth of the respondents specialize in land management and act in an oversight capacity in their work.

In terms of geographical representation, survey respondents practice in areas of the state in rough proportion to population distribution (respondents were asked to indicate all the areas in which they practice). The majority of respondents practice in Salt Lake County and the Park City area (72%), followed by Utah County (44%) and Weber and Davis Counties (40%). Most of Utah's population resides in these areas where plant

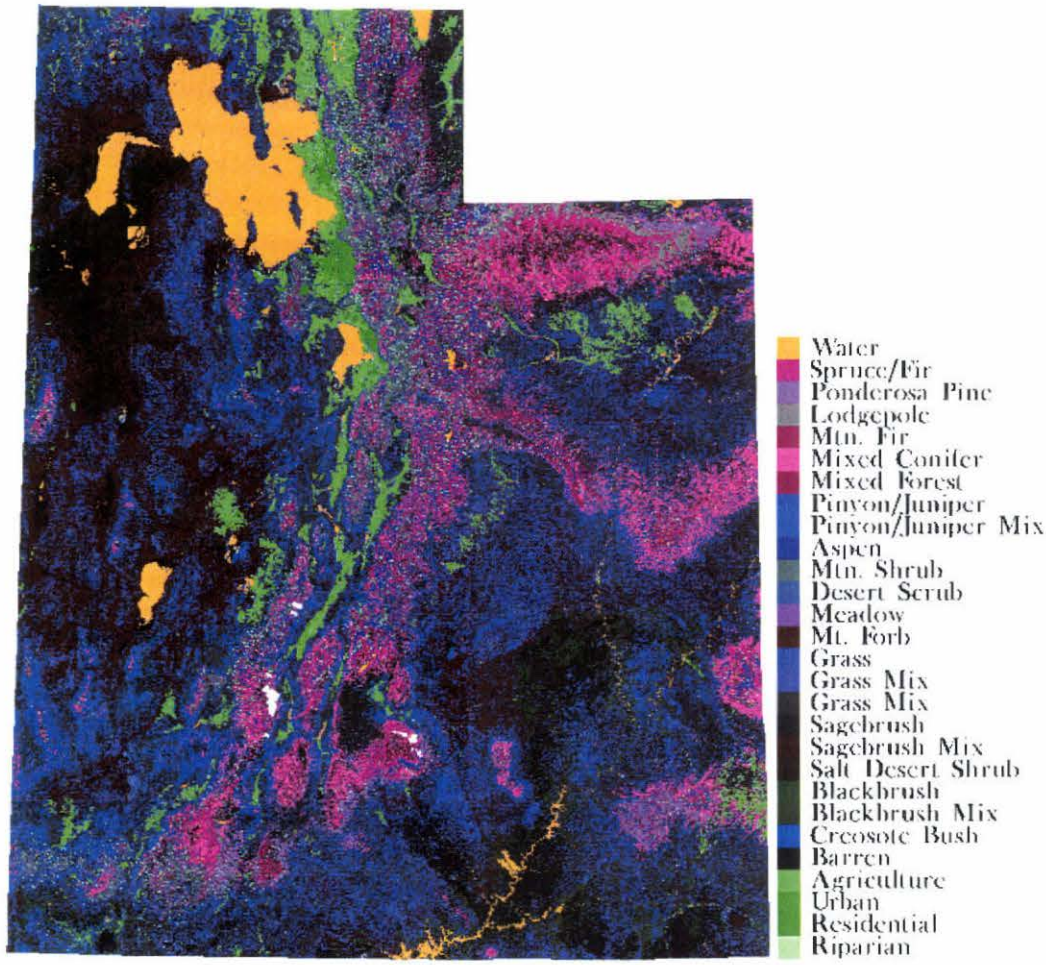

Figure 2-1. Utah geography and vegetation. Source: Utah State University, Department of Geography 2003.

choice and availability is guided by established demand for culturally adapted and non-native plants. While the majority of vegetation existing in these areas has been designed and manipulated to fit human needs for 150 years, significant native plant populations remain where steep slopes and natural physical barriers inhibit the spread of development (see Figure 2-1). Fewer respondents practice in the less populated areas of Utah, which include Cache County (28%), Southeast Utah and the greater St. George area (20%), Central Utah (13%), and Southwest Utah (13%). Landscapes in wildland areas are

especially rich in endemic species because they are more remotely situated from major population centers in Utah.

Respondents were asked to estimate the percentage of their work conducted for commercial, residential, restoration, municipal, state and federal clients (respondents marked multiple categories). In general, 60% of respondents work for residential or commercial clients, while 50% work for municipalities, 36% work for state agencies, 20% percent work for clients in the restoration market, and 19% percent work for federal agencies. Since these ASLA members work for a variety of clients, their experience helps to give us a better indication of demand for native plants by various types of end users.

Philosophical Base for Native Plant Use

In line with the findings of Hull and Robertson (2002), we were not surprised to find a great deal of variation in landscape professionals' demand for native plant products because it depends on the values they are trying to impart through a project's design and implementation. One section of the ASLA survey asked landscape professionals to rate their level of agreement with a series of statements designed to understand their philosophical approach to native plant use. Respondents were asked to rate their level of agreement with these statements on a scale of 1 to 10, where 1 indicated they "strongly disagree" and 10 indicated they "strongly agree." Rounded means of their responses as well as combined percentages are reported in Table 2-2. Responses show that landscape professionals strongly agree that "native plant use promotes a regionally distinctive

character in landscape designs", and that "using native plants in urban gardens is important for maintaining a connection to the place where one lives." They also strongly agree that "it is critical to use site specific native plants in restoration projects," that "using native plants in urban gardens helps people learn about the local ecology," and "by using native plants, urban gardeners can contribute to ecological restoration. Most landscape professionals agree that it is not difficult to envision how native plants will look in cultivated gardens, and the mixing of native species with locally adapted plants should be done.

Landscape professionals prefer to use native plants over non-native plants if they can achieve the same landscape objective, but they generally agree that plants chosen to meet conservation objectives need not be native to the area. These views seem to contradict each other, but make more sense when compared with landscape professionals' general agreement that for urban landscapes, it is more important to use drought tolerant or water-wise plants, even if they are not native, than to use plants that may not be water-wise. The focus in each of the previous three statements is on meeting landscape objectives. One landscape architect noted that landscape professionals choose plants to achieve a specific landscape objective, not necessarily to serve a philosophical cause. Perhaps this is why opinions were mixed about the ability of native species to shade taller structures and to blend with any architectural style, and about whether use of native plants limits color in landscape design, because these more practical considerations tend to be project specific.

Table 2-2.
Utah Landscape Professionals' Views on Native Plant Use

Agree or Disagree on a Scale of 1 to 10. Mean given in ( ).	Disagree (1-4)	Neutral (5-6)	Agree (7-10)
1. It is unreasonable to design landscapes that rely exclusively in native plants. (5) n=135	51%	14%	32%
2. Mixing native plants with locally adapted exotics should *not* be done. (3) n=135	84%	7%	9%
3. Using native plants in managed landscapes is important for preserving genetic diversity that could be lost in the wild. (6) n=133	17%	42%	41%
4. Use of native plants is always preferable to the use of non-native plants if they can achieve the same landscape objectives. (7) n=136	15%	16%	69%
5. As long as plants meet a specific conservation objective, it is not critical that they be native to the area. (7) n=136	24%	19%	43%
6. Using native plants in urban gardens is important for maintaining a connection to the place where one lives. (8) n=136	21%	25%	54%
7. Using native plants in urban gardens helps people learn about the local ecology. (7) n=135	6%	15%	79%
8. By using native plants, urban gardeners can contribute to ecological restoration. (7) n=134	17%	25%	58%
9. It is critical to use site specific native plants in restoration projects. (8) n=135	4%	12%	84%
10. The use of native plants limits the use of color in landscape design.(5) n=136	58%	12%	30%
11. Native plants blend appropriately with any architectural style. (5) n=136	49%	17%	34%
12. For urban landscapes, it is more important to use drought tolerant or water-wise plants, even if they are not native, than to use native plants that may not be water-wise. (7) n=135	11%	21%	68%
13. Native plant use promotes a regionally distinctive character in the landscape designs. (8) n=136	6%	6%	88%
14. The use of native plants limits the opportunity to shade taller structures. (6) n=136	33%	18%	49%
15. It is difficult to envision how native plants will look in cultivated gardens. (4) n=135	65%	15%	20%

Any given landscape project usually must meet several objectives in order for the final outcome to please the designer, the contractor, the client, maintenance crews, and other parties that may be concerned about the consequences of the completed design. Several interviewees explained how the objectives of different ecologists may vary and how those objectives may differ from those of landscape designers. One restoration specialist who was interviewed is responsible for helping vegetation grow back on acid rock tailings created by mining activity. He finds it is difficult to use native plant materials historically found on the site because the lack of historical records makes that hard to define for specific points in time, and soil characteristics have changed so much that the soil currently supports few plant species. He is happy when he is just able to get some plants to grow and to stabilize soil erosion. His objectives differ from those of his colleague who does wetland rehabilitation for the same company and who finds it much easier to include the use of native plants historically found in the area prior to mining activities.

Another ecologist practicing desert restoration requires that some endemic species be custom grown from plant populations already existing on site in order to increase the chance these plants will out-compete invasive species spreading into delicate desert ecosystems. She feels that source-identified plant materials should be used whenever possible, including in the construction of silt fences and in planting vegetation along roadsides. Her goal is to protect southwest desert biodiversity and at-risk endemic plant populations in the area in which she practices. Landscape contractors in her area focus on the development of ecotourism and use species native to a much wider area in order to

enhance the potential for commercial residential development to meet the aesthetic expectations of tourists' and newcomers' for southwestern design. To reach a compromise on the use of native plant materials, the ecologist offers to harvest the native plants on site that would normally be destroyed during construction and transfer them to a holding nursery where they will be cared for until the project is over. The salvaged plants can then be used for nearby restoration projects, or planted back on development sites after building construction has been completed.

Landscape professionals practicing in cultural and urban areas are dealing with similar questions related to defining the geographical range of the native plants they choose to use. ASLA members were asked to indicate how specific were their requirements on native plant source in order to meet various objectives, with the choices being "native to a specific site location," "native to an ecological region," or "native to the Western United States." Survey responses indicate that objectives requiring the highest degree of source specification (e.g. native to a specific site location or ecological region) include fire rehabilitation, mine reclamation, control of invasive species, enhancement of biodiversity, creation of wildlife habitat, aesthetics and personal interest. A less stringent degree of specification was required for controlling soil erosion, conserving water, reducing the use of fertilizers and pesticides, and creating of a "sense of place." A less specific boundary on native plant source (e.g. native to an ecological region or the western United States) was required for shelter belts and windbreaks, shading and energy efficiency, reducing landscape maintenance, and providing alternatives to Kentucky Bluegrass turf. Table 2-3 shows the percentage of valid

Table 2-3.
Source Specification Important to Landscape Objectives

Landscape Objective	Native to a specific site location	Native to an ecological region	Native to the Western United States
Fire Rehabilitation (n=33)	42.5%	42.5%	15%
Mine Reclamation (n=33)	42%	46%	12%
Erosion Control (n=93)	31%	44%	25%
Shelter Belts/Windbreaks (n=58)	19%	40%	41%
Control of Invasive Species (n=42)	40%	43%	17%
Wildlife Habitat (n=79)	30%	52%	18%
Creating a Sense of Place (n=93)	31%	41%	28%
Water Conservation (n=99)	23%	41.5%	35.5%
Reduced Landscape Maintenance (n=90)	20%	36%	44%
As an alternative to Kentucky Bluegrass (n=71)	17%	39%	44%
Reduced Use of Fertilizers and Pesticides (n=55)	25.5%	40%	34.5%
For Shading and Energy Efficiency (n=58)	17%	22%	69%
Enhancing Biodiversity (n=56)	29%	50%	21%
Aesthetics/Beauty (n=2)	50%	50%	-
Personal Preference for Native Plants (n=1)	100%	-	-

responses for each site location.

Interest and Experience of Landscape Professionals Using Native Plants

Changes in thinking about plant material as well as growing demand for and supply of native plants has strengthened landscape professionals' interest in the use of native plant materials and their ability to satisfy complex project objectives with native plants. When asked about their native plant use over the past five years, most

respondents indicated that they use native plants just as often as they did five years ago (54%), or they use native plants more frequently than they did five years ago (41%). Landscape professionals who use native plants more frequently than they did five years ago indicated that native plants are more readily available and clients are requesting them more often, especially for meeting water-wise landscaping objectives. Those professionals who are using native plants just as often as they did five years ago said that their clients are just beginning to consider native plants as an alternative or that native plant availability has not increased. Only six respondents indicated that they use native plants less than they did five years ago, and only two of those people think that the use of native plants limits available choices when meeting landscape objectives.

When asked to estimate the percentage of time that they use native plants in their current work, over half of the respondents indicated they use native plants 1% to 40% of the time. Remarkably, 22% of the 118 respondents to this question use native plants in 61% to 80 % of their work, and about 10% of respondents use native plants 81% to 100% of the time.

Survey participants were subsequently asked about their level of experience in using native plants. Answers are indicative of the relative interest in native plant use mentioned above. Out of 119 valid responses, 17% of the respondents indicated that they consider themselves to be *novice* native plant users, 43% consider themselves to be *average* native plant users, 38% believe they are *experienced* plant users, and 2% consider themselves to be *expert* native plant users. One respondent commented on the survey, "knowledge [about native plants] is everything."

While study results indicate that interest and experience in native plant use is increasing, how do landscape professionals know which plants to choose? Research suggests that plant choice depends on the professional's knowledge of native plant traits as well as the ability of native plants to meet project objectives. Interestingly, choice of plant material based on whether or not plants are native is not the primary consideration in these professionals' selection of plant material.

Landscape professionals tell us that the use of native plants needs to complement project objectives in landscape design. Survey respondents reported consistent and increasing use of native plants to meet some of their landscape objectives. They were asked the question, "How often is the use of native plants the primary objective of your work?" Of the 118 respondents, 3% chose "always," 26% marked "frequently," 59% selected "sometimes," and 11% marked "never." This is consistent with other study findings suggesting that use of native plants is one consideration among several needed to meet project objectives.

Information Needs

Survey results suggest increased interest for native plant use among landscape professionals in Utah, but also indicate that landscape professionals desire to know more about native plant growing requirements so that they can choose plants wisely to achieve desired landscape objectives. Knowledge about the growing habits of native plants also promotes appreciation for the intricacies of ecology.

Landscape professionals not only impact the future aesthetics of Utah landscapes,

but the function of the land as well. Ecologists and other professionals with strong scientific backgrounds frequently complain about the lack of basic natural systems knowledge held by landscape architects working in the design and contracting fields. One ecologist we interviewed asked, "How can landscape architects expect to positively impact our environment when they do not understand the way natural systems function?" This person believes too many members of the landscape profession are often too eager to approach a job without taking the time or money to secure the appropriate expertise required to achieve a successful, ecologically responsible and sustainable final product. In many cases, landscape projects fail to meet their objectives when landscape professionals do not understand the effects of native plant choice on maintenance schedules, or lack proper monitoring practices to measure the success of their projects over time.

The survey asked which plant characteristics landscape professionals would want to know more about in order to increase their use of native plants (see Table 2-4). Respondents indicated they would use native plants more often if they had more information on the following native plant characteristics (listed in descending order of frequency of response): growth habits, which plant combinations grow well together, specific water requirements, soil requirements (often overlooked by landscape architects in planting design according to one interview), blooming cycle, adaption constraints, USDA zone requirements, and genetic source.

Native plant users have certain expectations when they choose plants. Some people wish to use native plants, but do not know what to expect in terms of growth

Table 2-4.
Native Plant Characteristics Utah Landscape Professionals Wish They Knew More About (n=119)

growth habits	71%	blooming cycle	56%
which native plants grow well together	70%	adaption constraints	55%
specific water requirements	63%	USDA zone requirements	39%
soil requirements	59%	genetic source	17%

habits, blooming cycles, water and fertilizer requirements, etc. Thus, native plant performance can disappoint the user when plant characteristics and horticultural requirements are not understood from the outset. For example, interviewees commented that many users compare the growth habits of native plants to the familiar habits of adapted exotics when native plants generally have a reputation for growing slower, requiring fewer soil amendments and fertilizers, and adapting to existing growing conditions with minimal interference once they are established.

While some general characteristics are shared by many native plant species, landscape professionals and home gardeners should not assume the use of all native plants will meet their desired landscape outcomes. Not every species of native plant is drought tolerant. Species adapted to more moist mountain elevations such as Aspen (*Populous tremuloides*) and Redtwig Dogwood (*Cornus sericea*) require more water than the natural precipitation rates found along the Salt Lake Valley floor. Therefore, these plants may not work for water conservation objectives in "drought loving" designs. Each species has unique growing habits. Disappointment in plant choice occurs when people involved in plant maintenance fail to understand the plants' care requirements or

unknowingly try to maintain them with the same habits that they would a lawn or petunia border.

Utah native plant growers and landscape professionals agree on the need for better labeling and plant certification standards. Retail buyers and landscape professionals want native plant products that are packaged with certification of quality inspection and accurate labeling so they can make more informed decisions about their nursery purchases. Survey respondents strongly agree that native plant labeling needs to include more information on the geographical range for which a particular species is considered to be native. Native plant growers and landscape professionals agree good labeling practices can reduce both valuable time spent answering client questions and the risk of a project failing to meet client expectations. Regional growers in warmer climates such as California have the advantage of longer growing seasons. While this hastens the turn around time the grower has to get their liners ready to sell, there are some native plant users in the Intermountain West who are uncertain about using native plants of unknown origins, or raised at lower elevations in more humid and temperate climates. Past experiences of three Utah interviewees suggest that plants grown in lower elevations may fail from acclimation exhaustion.

Source conscious native plant buyers, including ecologists and reclamation specialists, often want to know from where plants are being shipped before they place an order. The good news for Utah growers is that 81% of survey respondents strongly agreed to with the statement, "I prefer to buy native plants from Utah growers" (on a scale of 1 to 10, with 1 meaning "strongly disagree" and 10 meaning "strongly agree," this

percentage marked 8 or higher). This opinion could be a reflection of the relation between source location and adaptation performance, as well as the desire to support in-state businesses.

In terms of information sources, the ASLA survey asked participants to check the three sources of information that they depend upon the most for information about native plants. Percentages of respondents who use these sources are listed in Table 2-5.

Table 2-5.
Sources of Information Utah Landscape Professionals Rely Upon Most for Their Work (n=118)

Books and Magazines	69%	State Nursery	20%
Word of Mouth	37%	Internet	18%
Use in another landscape	32%	Utah Native Plant Society	4%
Demonstration Gardens	31%	Conferences and lectures	2%
Formal education	30%	Radio and Television	2%
USU Extension Services	29%		

In the landscape profession, individuals rely significantly on books and magazines as a source of native plant information. "Word of mouth" is the next most important source followed by "use in another landscape," "demonstration gardens," "formal education," and "USU extension services." Other significant information sources used include the State nursery and the Internet. The least used source of information, according to these rates of response, is the Utah Native Plant Society (UNPS) which has been educating the public on the appreciation, preservation and conservation of the native plant and plant communities found in the state of Utah for twenty five years (Utah Native Plant Society

Mission Statement 2003. URL: http://www.unps.org/, accessed 24 February, 2003). This finding suggests that the Utah Native Plant Society has valuable information to share and could better market this information to increase awareness of native plants among landscape professionals.

Landscape architects and restoration specialists who are Lone Peak Conservation Nursery customers and were interviewed for this study said they obtain their knowledge about best planting and growing practices from a variety of sources. A good portion of their knowledge comes from trial and error. If a planting technique fails, then the landscape professional has the opportunity to learn from that experience and use the same species successfully the next time. Other information sources listed by ASLA survey respondents or mentioned by state nursery customers include the Society of Ecological Restoration (available online), nursery brochures, local growers, the Utah Native Plant Society, Utah State Extension Services, and Lone Peak Conservation Nursery staff members.

The Internet is an information tool that is becoming more and more useful, especially for one grower in Central Utah who is able to take orders from all over the region and ship his plants out of state. If a business' web page is well constructed and informational, customers can become more knowledgeable about native plant products and can compare useful information such as availability and price. Kelly Kukendahl from the Native Plant Network announced the creation of a web-based library for buying and selling native seed at the Boise Native Seed Symposium in October of 2000. The project aims to provide an information data base to help individuals research and buy and sell

native plant materials as network partners facilitate the development of economical sources of genetically certified native seed from local plant populations (Native Seed Network Website Development Workshop Handout, October 31, 2001).

Other excellent local and regional web pages provide helpful information for native plant species identification, product availability, plant care requirements, plant product diversification and cost. Internet browsers can access a national native plant species index as well as information on sellers and landscape professionals who have experience using native plants by state. A quick review of a national web site sponsored by the Lady Bird Johnson Wildflower Center shows that Utah sorely lacks updated information from native plant suppliers and users. Only two Utah growers and three landscape professionals capable of using native plants were listed on the site as of February 24, 2002 (http://www.wildflower.org/?nd=suppliers_database). Entries for states with more advanced native plant markets, such as California and Colorado, consisted of several pages of native plant sources and business-related contacts. This comparison suggests there is room for both growth and increased visibility in the Utah native plant market.

Perceived Limitations to Native Plant Use

While knowledge about native plants' growing traits and abilities to adapt to foreign landscapes generally increases native plant use among landscape professionals, there are perceived limitations to the use of native plants which make it difficult for survey respondents to choose native plants over adapted exotic plant species commonly

supplied by the traditional nursery market. Individuals were asked to rate a list of factors in terms of whether they posed limitations to their use of native plants on a scale of 1 to 10, with 1 meaning there is "no limitation" and 10 meaning there is a "serious limitation" Table 2-6 summarizes significant limitation factors evaluated for this section of the survey from 117 individuals.

Table 2-6.
Limitations to Native Plant Use

On a scale of 1 to 10, with 1 meaning "no limitation" and 10 meaning "serious limitation", rate the following factors. Mean given in ( ).	No Limitation (1)	No Serious Limitation (2-4)	Neutral (5-6)	Significant Limitation (7-10)
Cost is too high (5) n=117	20%	24%	28%	28%
Desired plant species are not available (8) n=117	1%	9%	11%	79%
Desired plant sizes are not available (7) n=116	1%	15%	16%	68%
Customer unfamiliarity in caring for native plants (6) n=116	5%	19%	24%	52%
Customer perception that native plants are not as beautiful as traditional garden plants (7) n=117	3%	14%	12%	71%
Poor plant/seed quality (5) n=112	10%	25%	36%	29%
Finished landscape did not turn out as planned (5) n=110	10%	35%	25%	30%
Limited knowledge of plant propagation and care (5) n=114	8%	29%	30%	33%
Limited knowledge about specific native plant use (5) n=114	7%	33%	26%	34%

The greatest factor limiting native plant use among Utah landscape professionals is desired plant species not being available, followed by customers' perceptions of native

plant aesthetics. Lack of availability of desired plant size closely follows. Customer unfamiliarity with native plant care and limited knowledge about specific native plant use also limits the use of native plant material.

High plant cost, surprisingly, ranked lowest as a factor on the limitation scale with a mean rating of 4.5. Plant choice is directly affected by market availability of certain species, and not necessarily by cost, indicating that these professionals are willing to buy native plants when they can find them in order to meet certain objectives. These results highlight two concerns for the native plant market in Utah. First, native plant products demanded by landscape professionals still are not adequately supplied by market growers. Second, landscape professionals sense uncertainty from their clients (the public) when it comes to aesthetic perceptions and familiarity with care for native plant products.

Compare the previous table's results with a similar survey section on the importance of native plant products and services. While all of these services are generally important to landscape professionals, Table 2-7 suggests that "competitive price" and "on time delivery" are important decision making factor to the final purchase. Interestingly, "product certification and labeling" is considered most important second to "competitive price", but "plant source identification" ranks least important overall. This could imply that landscape professionals generally care about sharing native plant care information and genetic integrity more than the geographical source the plant has been grown or obtained from.

Table 2-7.

Importance of Native Plant Products and Services

Rate the importance of the following native plant products and services on a scale of 1 to 10, with 1 meaning not at all important and 10 meaning most important. Mean given in ( ).	Not at all Important (1)	Less Important (2-4)	Neutral (5-6)	Important (7-9)	Most Important (10)
Plant source identification (7) n=78	3%	18%	14%	48%	17%
Product certification and labeling (8) n=79	3%	7%	10%	55%	25%
Size of available plants (8) n=80	0%	4%	15%	56%	25%
Product guarantee (8) n=80	4%	7%	10%	60%	19%
On time delivery (8) n=78	3%	5%	10%	58%	24%
Competitive price (8) n=79	1%	6%	9%	58%	26%
Buyer education on plant's abilities and constraints (8) n=79	1%	7%	10%	65%	17%
Custom growing service for specialized orders (7) n=77	7%	15%	18%	52%	8%

Market Supply of Native Plants in Utah

Once landscape professionals have made the choice to use native plants, the next question they may ask is "Where do we find them?" A section of the ASLA survey solicited landscape professionals' views on the Utah native plant market and their opinions about the appropriate role for Lone Peak Conservation Nursery (see Table 2-8). Landscape professionals expressed concerns that market demand for certain native plant species and the demand for native plants in larger sizes is growing faster than market supply. While landscape buyers generally agree that the market for native plants is regional in scope, most would prefer to buy native plants from Utah growers.

Table 2-8.

Landscape Professionals' Views on the Utah Native Plant Market

	Strongly Disagree (1-2)	Disagree (3-4)	Neutral (5-6)	Agree (7-8)	Strongly Agree (9-10)
The demand for native plants in Utah is growing faster than the supply. n=121 (7)	2%	6%	32%	41%	19%
The demand for larger sizes of native plants in Utah is growing faster than the supply. n= 120 (8)	2%	3%	24%	39%	32%
I would be willing to pay more for native plant products if I knew they were source identified. n= 123 (6)	10%	15%	42%	23%	10%
My clients generally rely upon me to select the plant materials for my projects, and thus, I have a lot of influence over whether native plants get used. n= 123 (8)	1%	2%	9%	40%	48%
I prefer to buy native plants from Utah growers. n= 123 (8)	1.5%	1.5%	10%	35%	52%
Consumers are generally confused about what constitutes a "native plant." n= 124 (8)	0%	4%	10%	39%	47%
The markets for native plants are generally regional in scope. n=121 (7)	3%	7%	21%	45%	24%
Labeling of native plants needs to include more information on the geographical range for which a particular plant is considered native. n= 125 (7)	1%	6%	14%	48%	31%
Sellers of native plants are willing to share information concerning the successful production of native plant products. n= 103 (6)	1%	10%	43%	28%	18%

Most people surveyed or interviewed for this study are very supportive of Lone Peak Conservation Nursery and think it plays a valuable role in the Utah native plant market. ASLA survey respondents were asked to mark their level of agreement with four statements about the nursery's role on a scale of 1 to 10, with 1 meaning "strongly

disagree" and 10 meaning "strongly agree" (refer to Table 3-1). Concerning whether the state nursery should supply source identified native plants, 72% agreed (responses of 7 or greater). Of the respondents, 67% agreed that the state nursery should be a risk taker in developing new native plant markets (responses of 7 or greater). Lone Peak Conservation Nursery also is considered an important source of information for the native plant market by 64% of respondents (responses of 7 or greater). However, 63% of these landscape professionals disagreed with the statement that Lone Peak Conservation Nursery should specialize in growing native plants that can be used for conservation purposes only (responses of 4 or lower). This result implies that landscape professionals would like to purchase native plants from Lone Peak Conservation Nursery for a variety of purposes, including purposes that might be considered nontraditional conservation landscaping, and they view the state nursery as one of their major native plant suppliers.

Native plant users are often unaware of the introduction of new products to the market. Interviewed growers and restoration specialists often commented that the orders they receive from landscape designers and contractors do not specify available sizes or products for projects they have bid on, and so they are forced to renegotiate their planting schedule construction documents with the help of nursery sales representatives.

Other in-state suppliers of native seed and plant species have entered the market since the establishment of the state conservation nursery. Much of the native seed on the market is provided by individuals who harvest wild land seed under permit on public lands, and then sell it to seed distributors. There are a few farmers of native seed and

grasses in rural areas of Utah. Interview sources revealed approximately three or four small growers of native plant seedlings that are sold as bare root stock (plugs) or tublings. Five Utah native plant farmers sell native plants in containers or as "balled and burlapped (B&B)" trees and shrubs. (The term "B&B" refers to the process by which larger trees and shrubs are often dug up from the ground with the root-ball wrapped in burlap and secured with wire or rope before shipment.) Possibly other small growers and native plant enthusiasts exist who were not discovered in this study.

Utah landscape professionals often want larger container plants and specimen sizes than those readily available on the current market. When asked what sizes of plants landscape professionals would like to use but for which they cannot find suppliers, respondents wrote requests for 2-5 gallon containers, plus-10 gallon container sizes, 3" and 4" standard caliper trees, and greater choice in balled and burlapped stock. This finding is consistent with information gathered in Lone Peak Conservation Nursery customer interviews, where landscape architects and designers who specify plant sizes according to standards set by the state's traditional green industry feel frustrated when they cannot find Bigtooth Maple (*acer grandidentatum*) with a 3" caliper, or Pinyon Pine (*pinus edulis)* in a size 5 container. Native plant species that landscape professionals have a difficult time finding include Bigtooth Maple *(Acer grandidentatum*), Bristlecone Pine *(Pinus aristata*), Pinyon Pine (*Pinus edulis*), and Fourwing Saltbush *(Atriplex canascens*).

Landscape professionals may wonder why constraints in native plant supply exist in Utah, a state which is home to 2,966 native and endemic plants species (Stein 2002,

pp. 16). When asked about landscape professionals' perception of shortages in native plant supply, Utah growers replied that certain native plant species and larger sizes of certain native plants are difficult to produce consistently. Some native plant species grow so slowly that the time needed to grow specimen trees from seedlings makes the wait too expensive in terms of labor and stocking room. Native plant species often have unique growing traits such as specialized soil requirements and deep reaching root systems that make growing these species in Green Industry standard containers difficult. Other species, such as *Castelleja spp.* (Indian Paintbrush) grow with other host plants and are not easy to propagate alone in a nursery setting.

Difficult to find species can be specially ordered or contracted from native plant growers. For example, the use of seed, seedlings, and plants in small container sizes for mine land reclamation and other special restoration projects may require landscape professionals to plant endemic species found growing on site. Many of these plants are not available on the market, unless they are successfully test grown by a supplier who can afford the time and resources to research the growth of that plant. Most growers provide custom grow orders as a service to their customers with special plant needs. Custom orders can be difficult to arrange if there is not enough lead time in the project to allow for seed collection, stratification and germination. Growers in central and northern Utah require six months to three years lead time for custom grow orders depending on the plant species and seed availability. One grower asked designers and contractors not to forget that "Nature has Her own time table" and does not satisfy designer demands for "instant gratification." Many growers require a deposit or payment in advance on custom orders

in order to minimize cancellations.

Other hard to find native plant products, such as large sizes of slow growing Pinyon pines, may be obtained by suppliers who are willing to obtain permits to dig those plants on state or federal land, or who can work with large land owners and ranchers to grow trees and shrubs on private land. However, some restoration specialists express concern over the loss of ecological diversity in the wild. The Nature Conservancy's annual report on America's biodiversity ranks the risk of decline in Utah's vascular plant diversity as third highest in the nation.

One interviewed ecologist feels the preservation of ecological integrity in Utah wild lands depends on minimal human intervention. When searching for ways to meet her needs for larger sizes of certain native plant species, she pays particular attention to the ethical consideration of various collection methods for harvesting native plant stock. She fears that native plant demand may lead to increased harvesting of native plants in the wild that might threaten ecological integrity because humans have a tendency to deplete natural resources to the point where the remaining population of a species community cannot remain viable. She encourages landscape professionals with similar concerns to be aware of suppliers' native plant harvesting techniques and to encourage knowledge sharing concerning important native plant population thresholds before native species are harvested in order to avoid further damage to populations already at risk.

Native plant growers are in the process of adapting product availability to meet the demand for larger product sizes and greater species availability. In the meantime,

landscape contractors and restoration specialists involved with project construction who we interviewed or surveyed suggest it is important for landscape architects to research the availability of plants that they specify in their designs before delivering planting plans to the construction contractor. While this effort requires time and general native plant market awareness, persons responsible for the installation of projects appreciate the validity of recommended planting schemes and feel this service increases the success rate for meeting desired project outcomes.

Native plant materials which are poorly specified can have an adverse affect on project success and injure designer/client relations, or deter potential clients from using native plant species. Landscape architect firms that wish to research plant availability for their clients may prefer to use the services of a plant broker. The possibility of finding plant broker services for Utah grown products is difficult at present, but may improve as the demand for native plant use in Utah continues to increase (Telephone conversation with Justin Hamula, February 14, 2003). Other native plant users who were interviewed agree that landscape professionals have an obligation to share the responsibility of educating their clients about native plant benefits and growth and care characteristics in order to avoid perpetuating and spreading common mis-perceptions about native plant care and performance expectations.

The Role of Utah Landscape Professionals

Landscape professionals have a vital role to play in the growing use of native plants in Utah. Through their practical experience, information sharing, and professional

dialogue, they can further knowledge about native plants, promote a landscape aesthetic attuned to local ecology, encourage ethical practices in the production and use of native plants, and contribute to achieving excellence and sustainability in Utah landscape environments.

Conservation and sustainable land management issues in the West promote a new philosophy for ecological stewardship. Land management practices and industrial impacts require thoughtful consideration of the environmental impacts people impose on nature, and awareness of variance in public understanding of "nature" and "restoration" (Gobster and Hull 2000; Hull and Robertson 2001). Many regional and recreational planning projects focus on open space planning, preservation of bio-diversity, and the need for humans to accept limitations or risk destruction of natural systems.

Study results suggest that landscape professionals believe the use of native plant species is preferable to the use of adapted exotics for many reasons, yet the main justification for plant material choice is to satisfy the landscaping objectives of the project and their clients. Landscape professionals have the ability to influence their clients' choices of plant material, and can educate their clients on the benefits or limitations of native plant use to obtain satisfactory end results. Landscape professionals run into trouble when designer and client perceptions of important project objectives do not agree. Awareness of ambiguity in human perceptions of natural resource values can be applied to design and planning issues, and may help landscape professionals better understand the needs of users of their work and may encourage native plant users to develop more sustainable and democratic landscapes.

The Utah Chapter of ASLA can work to share native plant ideas and experiences with society members in other states. Some states, such as Minnesota, require a section of their landscape architecture licensing exam to address native plant species identification and care requirements. The Utah Landscape Architect Licensing Exam (LARE) currently does not test native plant species identification or knowledge (Mike Timmons, LARE exam reviewer, "Professional Practice" class lecture, April 4, 2003, Utah State University; Rogers 1997, pp. 16-17). Testing of native plant identification and knowledge of plant characteristics may increase landscape professional's ability to choose appropriate plant material that supports current trends in landscaping objectives. The Utah Chapter of ASLA could enlist support for these efforts from ASLA members, the Council of Educators for Landscape Architects (CELA), and other state educators such as the Native Plant Society, Lone Peak Conservation Nursery, and Utah State University Extension services.

Other states with similar landscape trends are focusing collaboration efforts on serious state issues such as plant choice and drought. The Pro-Green Conference held in Denver, Colorado in January 2003 exemplified one strategy for collaboration made possible through industry participation in management of the state's drought. At this conference, successful information sharing occurred among many players in Colorado's landscaping industry who were in attendance. Conference participants included speakers and attendees in a variety of lecture tracts focused on the development and use of native plant products for xeric landscaping. Sessions were given by private growers, Colorado State University Extension Services, Colorado State Nursery representatives, experienced

landscape designers and contractors, the Irrigation Association, and other plant maintenance experts. In addition, the Colorado Chapter of the ASLA held its annual meeting in connection with the green industry's Pro-Green Conference, offering a separate track of session choices on one of the days. Participating industry members seemed to benefit from information sharing and discussions where important native plant market issues such as price, choice, availability, best installation and maintenance practices, and public perceptions about native plant aesthetics were jointly discussed.

As the demand for native plant use in Utah continues to grow, landscape professionals will increasingly be challenged to provide high quality results using native plant products. Continued information sharing, industry collaboration, and focused design efforts will turn good ideas into working realities, and strengthen the contributions of landscape professionals to the development of meaningful and functional environments.

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CHAPTER 3[2]

HOW 'NATIVE' IS NATIVE? DILEMMAS IN THE UTAH NATIVE PLANT MARKET

INTRODUCTION

Native plant species are no longer used solely for traditional conservation and restoration purposes. Current changes in urban conservation behavior such as xeric or waterwise landscaping, continued population growth in the arid West, scarcity of water resources, increasing appreciation for the beauty of native species, and concern for bio-diversity suggest there may be emerging niches in the market for native plants.

The growing literature on native plants reflects some of the needs and concerns involved in their changing use. Much of this literature focuses on identifying which plants are native to particular ecosystems and how people can successfully use them in restored or managed landscapes (Brodie 1996). Utah native plants have been described and classified by several authors (Albee, Schultz, and Goodrich 1988; USDA 2001; Woodson 2001). Most recently, Wendy Mee, Jared Barnes, Richard Sutton, Roger Kjelgren, Teresa Cerny, and Craig Johnson (2002) have compiled much needed data into a reference book, "Water Wise: Native Plants for Intermountain Landscapes" describing Utah native plants, their eco-associations, care requirements, growing traits and landscape applications.

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[2]This is chapter coauthored by Joanna Endter-Wada and Craig Johnson.

The philosophy of when and where native plants should be used is also receiving attention in the literature. Issues involved in the use of native plants in urban settings include creating conservation corridors (Henry et al. 1999), blending urban interfaces and wildlands through application of native plantings (Howe, McMahon, and Probst 1997), the aesthetic substitutability of native and low water use plants in residential design (Spranger 1993; Phillips 1995; Kratz 2002), planting native and adapted species to conserve water (Knopf 1991; Proctor and Denver Water 1996; Envision Utah 2000), landscaping to improve wildlife habitat (Nordstrom 1991; Anderson 1996; Natural Resources Conservation Service 2001), and the need for bio-diversity in landscape design (Cowan and Van Der Ryn 1996). Other authors discuss the need to define the appropriate use of native plants for habitat restoration according to the specific time of a certain succession period and place (Gobster and Hull 2000), ambiguities in human perceptions of nature (Hull and Robertson 2001), and the importance of using native plants to create a unique sense of place and personal ties to nature (Yee 1984; Brenzel 1997; Johnson 1998; Lowry 1999; Springer 2001).

While most of the native plant literature focuses on the aesthetic and ecological aspects of using native plants, some recent works have focused on emerging native plant markets. In the past, native plants were rarely marketed. An unpublished interview of early Utah landscape designer Kenji Shiozawa done by Susan Crook, alumni of the Landscape Architecture and Environmental Planning Department at Utah State University, tells how Laval Morris, Kenji Shiozawa, and Leon Frehner used native plants and stone to reflect a "uniquely Utahn" aesthetic in their work. However, these designers

lamented that native plants were not found on the general plant market and they had to dig them up from the wild (Shiozawa 1987:11).

Publicly-funded state and federal nurseries were established to supply native plants for conservation and restoration purposes when native plants were not available on the private market. The situation has changed and today the market for native plants is growing. Some authors are starting to look at the economic components of native plant and specialty markets (Lauer 2001; Potts et al. 2002; Ward 2002) and at various methods for assessing cost and benefit in restoration projects (Johnson 1984; Gwartney and Stroup 1990; Freeman 1993; Griffith and McCoy 2001).

LONE PEAK CONSERVATION NURSERY

The growing private market for native plants has created dilemmas for state and federal nurseries. Most of these public nurseries have legislated mandates to produce plants for conservation purposes. Traditionally, their plants were used on lands their own agency managed (e.g., with U.S. Forest Service nurseries) or were sold to other government agencies and rural landowners, mostly farmers and ranchers.

Utah's conservation program began in the 1920s under the Clarke-McNary Act which created a partnership between the United States Forest Service and the State of Utah. Through this partnership, the state conservation nursery was established with the purpose of growing plant species needed for public and private conservation efforts engaged in mostly by federal and state land management agencies and rural farmers and

ranchers. Lone Peak Conservation Nursery was first established in northern Utah where it worked closely with Utah State University, the state's land grant university located in Logan, Utah.

Lone Peak Conservation Nursery moved to Draper, Utah in the 1970s and was located on land adjacent to the state prison. It currently occupies 35 acres and grows mostly bare root or seedling stock for the conservation needs of public land management agencies and private land owners. Today the nursery carries over 90 different species of trees, shrubs, grasses and wetland plants, and other native plant species can be custom grown there (Zeidler 2002). Lone Peak Conservation Nursery is part of the Utah Division of Forestry, Fire, and State Lands.

Lone Peak Conservation Nursery managers, now in the process of developing a five-year plan, face several dilemmas caused by changing market pressures. The conservation nursery is funded, in part, by the state, which subsidizes the production of conservation plants that might not otherwise be available. However, since the nursery grows plants which then are sold, it is expected to recover operating costs, particularly in light of Utah's tight budgets in recent years. Often, Lone Peak Conservation Nursery grows specific plant materials to meet projected restoration needs, mostly related to fire on state and federal lands, only to find that the inherent unpredictability of demand in that market sector leaves them with large volumes of surplus product at the end of the season.

When this situation occurs, Lone Peak Conservation Nursery managers face the dilemma of having to find buyers for their surplus crops, destroy unsold plant surpluses,

or pot their bare root and seedling stock and store it until the next season. This means that the nursery managers must be open to sell left over plants to anyone willing to buy them, suffer a financial loss, or give up valuable space needed to start the next seasons' bare root and seedling crops to the held-over potted plant stock.

This dilemma is compounded by the timing and nature of sales. Most buyers for wildland restoration projects need native plants late in the season, mainly in response to fire occurrences. Alternative buyers in the urban landscape market, particularly other nurseries, generally want to purchase native plant stock early in the season for garden establishment. In recent years, Lone Peak Conservation Nursery has sold out of many species quite early in the season. While this reduces the nursery's risks of having left-over stock and incurring financial loss, it becomes problematic for nursery staff when the needs of conservation and restoration customers cannot be met. Lone Peak Conservation Nursery's only way of giving priority to these customers in the past was to set a minimum size on orders which then favored the large sales characteristic of conservation and restoration demand. In recent years, some large wholesale and retail nurseries have purchased plant stock from Lone Peak Conservation Nursery.

State nursery managers wonder if the changes occurring in native plant markets will provide a steady outlet for surplus stock in which to hedge nursery losses. Some employees believe the state nursery has an obligation to continue growing source identified native plant material. These products, as mentioned before, sell mainly to restoration and conservation users. They require additional effort to produce when seed must be gathered from sensitive plant populations over several growing seasons, or seed

propagation methods must be tried and researched. Other employees feel the nursery could cover its expenses better if it avoided the costly process of source identifying plants and focused on producing a more generalized selection of native plant species that can be sold to meet a variety of landscape objectives. Hence, the nursery faces the dilemma of whether to continue to put effort into source identification, which primarily meets ecological objectives (through conservation and restoration), or whether to expand their native plant species list, which might be a more viable financial strategy.

Changes in Lone Peak Conservation Nursery customer profiles support the nursery staff's assumption that interest in native plants is diversifying and the native plant market is expanding (refer to Table 2-1). While the percent of sales within each customer group varies from year to year, overall the percentage of public sector sales dropped from 58% in 1992 to 36% in 2000, while sales to private sector customers rose from 41% in 1992 to 64% in 2000. These changes suggest a shift in sales from the public to private sector, and possible increased interest in native plant use to meet nontraditional conservation objectives. In addition, the nursery has noticed an increase in out-of-state customers, suggesting that the market is becoming more regional in scope.

THE RESEARCH

In order to better understand these changes and their causes, Lone Peak Conservation Nursery applied for a USDA grant to study the market for native plants in Utah with the following objectives: to assess trends in demand for native plants used to

meet conservation and landscaping purposes; clarify the role of federal and state nurseries in developing markets for native plants; determine if enough supply exists to adequately serve apparent growing demand for native plant materials; and, examine current market trends which may help reduce risk and market uncertainty.

To supervise the study, Lone Peak Conservation Director, Glen Beagle and Eddie Trimmer (Project Director) formed an advisory committee. The following people serve on that Advisory Committee: John Fairchild from the Utah Division of Wildlife Resources; Roger Kjelgren from Utah State University's Department of Plants, Soils and Biometerology; Tom Landis, state nursery specialist from J.H. Stone Nursery operated by the US Forest Service in Central Point, Oregon; Bruce Ratzlaff from the Utah Office of Energy; Nancy Shaw from the Rocky Mountain Research Station in Provo, Utah; Steve Caicco, plant ecologist from the Bureau of Land Management Seed Bank in Boise, Idaho; Barbara Bellio from the U.S. Bureau of Land Management in Denver, Colorado; and, Diane Jones from the Utah Landscape Nursery Association.

Lone Peak Conservation Nursery contracted with the Natural Resource and Environmental Policy Program at Utah State University to conduct the research. The research team, which included Dr. Joanna Endter-Wada, Virginia Harding, and Judith Kurtzman, decided to assess market trends through a 2 part study that gathered information from buyers, sellers, and end-users of native plant materials.

The first part of the study consisted of surveying all current members of the Utah Chapter of the American Society of Landscape Architects (see survey in Appendix 1).

The Utah Chapter of ASLA was surveyed on the assumption that it is a sophisticated group of plant buyers and users, and thus, represents the leading edge of native plant market demand trends. Utah ASLA members are a diverse group of landscape professionals, they work in public and private sectors of the economy, they have knowledge of and experience with plant materials, and the Association's membership provided an ideal sample size that fit the constraints of available funding and time.

The ASLA membership survey, titled *Native Plant Use in Utah: Attitudes and Practices of Landscape Professionals,* contains 5 sections relating to respondents' professional background, philosophy of native plant use, experience using native plants, experience obtaining specific native plant products and services, and views on market demand trends and the appropriate role of the state conservation nursery. The term "landscape professionals" mentioned in the survey title reflects the varied nature of the landscape architecture profession and is inclusive of people who are working in related landscape fields such as landscape design, landscape contracting, and planning. Included with the survey was a list of native plants that grow in Utah for the participant's reference (see appendix 2).

The 8 page self-completion questionnaire was administered to ASLA members at their annual chapter conference in Salt Lake City during April 2002, with the remainder of the surveys mailed to those members who were not contacted personally at the annual meeting. We followed up with 2 additional mailings over the next 5 weeks following the Dillman method for maximizing survey response (Dillman 2000). Eventually, a total of 136 out of 248 ASLA chapter members participated in the survey, giving us a response

rate of close to 55%, which was good considering the surveys were mailed between mid-April and the first week of June, a very busy season for the landscaping industry. Survey results were coded and the data were analyzed using Statistical Package for the Social Sciences (SPSS).

For the second part of the study, we conducted face-to-face interviews with 15 customers of Lone Peak Conservation Nursery selected for their involvement in and knowledge of the native plant industry. These customers represented all segments of the native plant market and included 5 native plant growers, 2 native plant wholesalers, 4 restoration specialists working for public and private land management agencies, 1 roadside maintenance specialist, 2 landscape contractors, and a collective group of rural residents in need of conservation plant materials from the state. Interviewees were asked a series of questions focused on getting them to describe the Utah native plant market and their perceptions of change in that market. In addition, interviewees were asked to identify sources of knowledge necessary to their use of native plants, difficulties with growing and marketing native plants, and future expectations of market trends (see interview protocol listed in Appendix 3). Interview content was analyzed for recurring themes and important insights.

THE CHANGING UTAH NATIVE PLANT MARKET

The traditional demand for native plants includes the use of native plant species used for conservation and restoration objectives have long been valued for their ability to

restore or maintain desired ecological functions in important habitats. Gobster and Hull define "restoration" as the intentional intervention in process of landscape change in order to reach a desired outcome (2000: 11)." Traditionally, native plants have been used for conservation and restoration objectives. Utah ranchers and farmers frequently use native plant materials for the construction of windbreaks and snow shelters to increase crop production and livestock survivability in rural areas. Private and public land managers use native species to rehabilitate lands disturbed by fires, erosion, mining, intensive cattle grazing, noxious weed invasion, and to restore the ecological function of important wetland, riparian, and wildlife habitats.

This segment of native plant demand requires some native plant products to be genetically certified and source identified. Limited budgets for projects covering large areas of land often encourage planting contractors to use seed or younger plant materials such as plugs and seedlings. Often these products take 1 to 3 years to produce after they are requested from growers, so these plants are often purchased through a custom growing contract.

Emerging Demand for Native Plants

Current changes in urban conservation behavior, continued population growth in the arid West, scarcity of water resources, the increasing appreciation for indigenous plant aesthetics, and concern for bio-diversity lead Lone Peak Conservation Nursery managers to believe there may be emerging niches in the market for native plants not used solely for traditional conservation purposes. Native garden design authors discuss the use of native

plants to enhance the value of outdoor spaces in urban areas through improving the quality of habitat for desired urban wildlife such as birds and butterflies. Natural gardeners also claim native plants requires less water, fertilizer and insecticides than adapted exotics typically found at supermarket garden centers and regional nurseries (Knopf et al. 2002; Phillips 1995, Woodson 2001).

Objectives for native plant use in Utah follow these trends. Lone Peak Conservation Nursery interviews and the ASLA survey provide information on specific applications of native plants. Reasons given for integrating native plants into urban landscapes include a variety of conservation objectives, including minimizing water use, creating landscapes that reflect natural Utah surroundings, blending of vegetation from suburban development to wild land areas, establishing wildlife corridors, and preserving biodiversity in urban centers.

Often native plants used for these projects are expected to convey immediate visual results. Landscape professionals who participated in the survey asked for larger container sizes and species that fit their landscape objectives as well as decorative species that bloom or hold season-round interest. Plants sold to this group of users contribute to commercial and residential design demand in the market. Users in this segment of the market differ from traditional conservation and restoration users because native plant products chosen to meet these types of landscape objectives generally do not necessarily need to be source identified.

DEFINING THE NATURE OF NATIVE PLANT PRODUCTS

Ambiguity in current native plant labeling practices and the importance of native plant source identification raise the question, "How 'native' is native?" Native plants are not easily defined, often resulting in confusion among both market buyers and sellers. ASLA survey respondents think that "consumers are generally confused about what constitutes a native plant." When asked to rate their level of agreement with this quoted statement on a scale of 1 to 10, with 1 meaning "strongly disagree," and 10 meaning "strongly agree," 71% of respondents marked 8 or higher (refer to Table 2-2). Interviewees noted that confusion over accepted native plant definitions often creates dilemmas for suppliers trying to decide which plants to grow and how to market their products.

The definition of a "native plant" includes the flexible dimensions of time and space. For example a plant native to North America is generally defined as any plant known to exist on the North American continent prior to European settlement. Difficulties inherent in reconstructing pre-Columbian ecosystems, such as finding appropriate ecological evidence and recognizing that ecosystems are dynamic and change through time, make the *time* dimension of the definition alone problematic. Nevertheless, plant taxonomists, archaeologists, and ecologists have helped to develop fairly good working lists of native plants for various regions. But what happens to the dimension of *space* when ecological, political, and market boundaries overlap but do not coincide? What does it mean when native plant suppliers market "Utah Native Plants"? Looking at

these questions from an ecological perspective, there is really no such thing as a "Utah" native plant. While the entire range of some endemic plants may lie within state boundaries, "Utah" is not an ecologically defined geographical region.

Many plants native to Utah are actually regional in scope because state political boundaries overlay four major ecological zones. These zones, or biomes, include the Rocky Mountains, the Colorado Plateau, the Great Basin, and the Southwest High Desert (Bush 2000). Because of the way Utah is situated geographically, over 2,966 vascular plant species are considered native to the state, a number of which are only found in certain ecological niche communities with a much more narrow geographical range and others which can be found in much larger geographical areas (refer to Figure2-1). Many plants native to Utah are also found in neighboring states that share territory with Utah in certain ecological zones. Thus, a "Great Basin native" plant might also be found in parts of Nevada, Wyoming, Idaho, Oregon, and California (Merrill 2003: I).

The percentage of Utah's plant population that is at risk of extinction is the third highest in the United States, and Utah is the fifth highest state at risk for loss of overall biodiversity (Stein 2002:16). Some restoration specialists are concerned about the effects of market pressures on plant populations and the ecological consequences of spreading these plants as landscaping products through out markets all over the West.

Assessing this ecological risk is currently the subject of much debate. Ecosystem health is often measured by biodiversity. Maintaining the existence of several species better ensures the chance that ecological balance will remain intact should some species

expire or alter in some adverse way that might negatively impact human existence. Species richness, or the number of different native species is the most prevalent measure of biological diversity and procures a general knowledge of biological wealth. Decline in endemic species is oftentimes the first indicator of disturbances impacting ecosystem health (Bush 2000: 326-327). According to a study done by Nature Serve for The Nature Conservancy's States of the Union report on biodiversity in the U.S., Utah's diversity of plant and animal species rank 10th in the nation. Almost 15% of Utah native species are at risk of extinction, ranking Utah as fifth highest at risk for biodiveristy in the nation. Vascular plant populations rank fifth highest in number of species, and third highest at risk of extinction (Stein 2002:16). Nature has both economic and existence value. The first is often measured in terms of the dollar value natural resources provide, and the benefit they impart to markets of trade. Existence value is much more difficult to assess since science can not accurately pin point the specific impact that any one species' extinction may have on the biosphere (Bush 2000: 327).

When considering political boundaries, a different set of considerations start to influence the definition of a Utah native plant. In the interest of stimulating the economy, the state promotes Utah businesses and tries to develop market identification for products grown or produced in Utah. This is where a native plant as an ecological resource starts to be distinguished from a native plant as a market product. With native plants increasingly marketed on a regional basis and consumers eager to show loyalty to local producers, the phrase "Utah native plant" can mean something very different to consumers than what ecologists generally mean when they use the phrase. In this context,

"Utah native plant" might signify it is a native plant that is grown in Utah but it might not necessarily be a native plant from Utah. One of the most important business decisions Utah native plant growers make concerns the geographical range of the native plants they choose to grow (e.g., are they native to Utah or, perhaps, to the Western United States?)

In contrast to ecology and politics, markets recognize few geographical boundaries. The tendency of businesses is to grow their customer base, increase sales, and expand their market share, which oftentimes entails dispersing their products over a wider geographical range. Large and economically successful native plant businesses that operate at a regional scale try to carry inventory that can be sold to and used by a more general base of customers throughout their market range, thus they rarely worry about identifying the source or subspecies of their plants. They may even use regional ecological terms imprecisely in marketing techniques designed to appeal to people's cultural or aesthetic impressions of plants. Even when native plant sellers provide more site specific ecological information about their products, the choice of when and where to use various types of native plant species is left to buyers and end users.

STUDY FINDINGS

ASLA survey results reveal that source identification for native plants is important for some landscaping purposes (refer to Table 2-3). Survey participants were asked how specific their native plant source identification needed to be to meet various types of objectives (native to a specific location, native to an ecological region, or native to the

Western United States?). Landscape professionals working on restoration and land management projects have more specific requirements for native plant source than landscape professionals working on projects where the focus is aesthetics or urban conservation (meaning conservation of water, reduction in pesticide use, and shading of taller structures, etc.). Responses suggest that landscape requirements for source identified plants depends on the project and its objectives. Persons working for a commercial landscape design firms are much less likely to demand source identified native plants than persons working for the Forest Service or The Nature Conservancy. The Utah market for native plants is tied to regional ecology. Consequently, the demand for native plants in Utah is comparable to the demand for native plants in neighboring states.

Laurel Potts, marketing director for Rocky Mountain Natives located in Rifle, Colorado, recently finished a comparable native plant study for Colorado markets. She interviewed several Colorado seed companies, nurseries and garden centers, landscape architects and designers. She found that motivations for plant use in Colorado include the desire to build wildlife habitat, xeriscape or water-smart gardens, low maintenance gardens, and fire-wise landscapes. Restoration projects lead native plant species demand in volume, but she predicts interest in native plant use will continue to grow steadily over time with heightened awareness of drought, biodiversity issues, and indigenous aesthetics. Potts and others we surveyed agree that additional research is needed to investigate interest in native plant use in bio-engineering, bio-remediation, and aggro-forestry techniques currently recommended by the U.S. Department of Agriculture. In

Pott's estimation, "native plants constitute a largely unfulfilled market niche with unfulfilled market potential" (Potts, Roll and Wallner 2002: 122).

Demand for Utah grown native plants suggests that Utah growers have additional opportunities to supply this market niche. As mentioned, some native plant users require source identified plants. Many of these species are grown from seed collected on, or in close proximity to project site locations. In addition, three of the Lone Peak Conservation Nursery customers who were interviewed, and 123 out of 136 ASLA survey respondents (90%) commented that they prefer to buy Utah grown plants. The main reason for this preference relates to their assumption that certain species of native plants grown in Utah possibly acclimate faster than native plants coming in from lower elevation growers out of state. These buyers believe that seed collected and grown in similar environmental situations to the planting site will establish faster and have a better chance of survival.

Market Supply of Native Plants in Utah

Native plant supply in Utah is generally regional in scope. If a person were to trace the journey of a plant from where it was first purchased to the location where it is planted, he or she may be surprised at the number of times it exchanges hands between regional market players. Lone Peak Conservation Nursery staff discovered two source identification tags on a sage plant that had been purchased from a wholesaler in Utah and planted at the entrance to the state correctional facility. One was a tag from a California growing source and the other was their own tag which was placed on the plant when it

was a seedling grown at Lone Peak Conservation Nursery. Like many residents born in Utah, the plant had "grown up near the West Coast" and "returned to its roots." This example of California growers selling Utah native plants to Utahns illustrates the point made previously that "where a native plant is from" can differ from "where it is grown."

As this example suggests, the structure of connections between Utah native plant suppliers is fairly complicated. Suppliers include growers, wholesalers, and retailers. Some suppliers perform multiple distribution functions. Regional market growers compete with each other on the basis of quality, quantity, and species availability. Many of these growers act as their own wholesaler, and others ship directly to wholesale distributers all over the West. Native plant species are still a novelty to many Utah gardeners, thus the bulk of native plant sales go to meet restoration and conservation needs. As demand for larger sizes of native plants increases, so do upfront business costs, and a longer recovery time is needed to recover expenses.

Observation of and discussions with vendors attending the 2002 Utah Green Conference revealed that native plant products are shipped to Utah from the following states: Arizona, California, Colorado, Idaho, Oregon, Montana, Nevada, New Mexico, Texas, Utah, Washington and Wyoming. According to Mee et al., the numbers of regional native plant and seed suppliers participating in the Utah market from other states are: Colorado (11), California (10), Oregon (4), Washington (4), Arizona (3), New Mexico (3), Idaho(2), Montana(2), Texas (2), Nevada (1), and Wyoming (see Figure 3-1). Conservation Nursery (refer to Appendix 4 for a list of 2003 Western states native plant suppliers).

Characteristics of Utah's Native Plant Suppliers

Utah native plant suppliers currently play an important role in local and regional markets. According to Lone Peak Conservation Nursery customer interviews, few native plant growers have been supplying native plant demand as long as Lone Peak

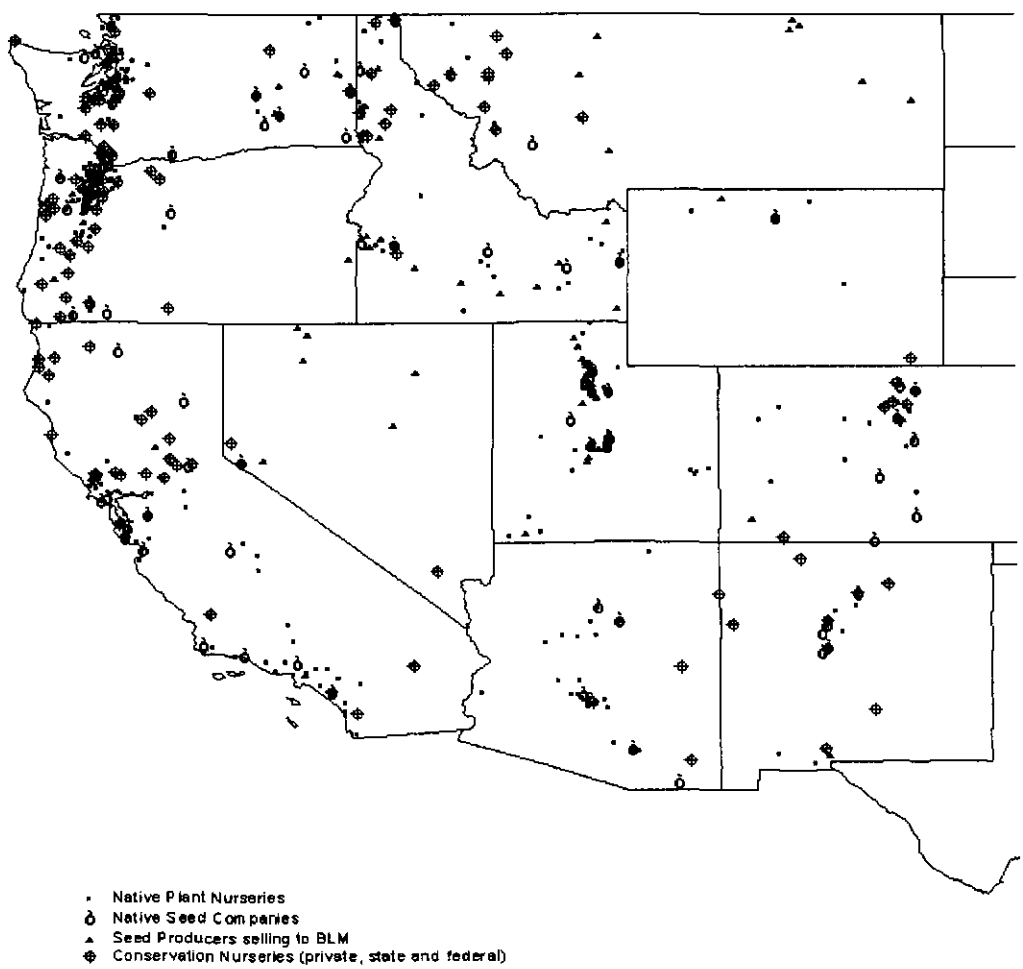

Figure 3-1. Regional native plant supply in the western United States. Source: Lone Peak Conservation Nursery.

Utah Native Plants Incorporated supplied container plants in the early 1980s, but it soon closed due to management conflicts between business partners (LPCN customer interview). Today, over 20 native seed and plant suppliers operate from within the state (Mee et. al. In Press) including 6 seed distributors, 2 seedling growers, and 14 potted plant suppliers (4 of these grow native plants only). One Utah native plant grower said, "This is a committed business." Native plant nurseries are not the typical production ground for the annuals, shrubs and trees normally found at local garden centers (see Figure 3-2).

For some native plant growers, their hobbies and personal passions grew into businesses. Successful native plant businesses require a tremendous amount of specialized ecological knowledge, practical experience, and business acumen. Utah native plant growers are often thought of as the "information gurus" who apply book knowledge to practice. Sharing plant care knowledge with the public takes up much of their time. Interviewees said they are often swamped with calls from people using native plants in their work, many of whom are repeat customers or potential clients. One seedling grower feels there is enough interest from the public living within close proximity to his nursery to open a retail shop. However, he is a one-person operation and is busy enough supplying products to traditional restoration clients. He does not have the time or interest to educate the retail public.

Other Utah growers, such as Janett Warner, owner of Wildland Nursery in Joseph, Utah and co-founder of the Garden Niche, a retail xeric and native plant nursery in the Salt Lake area which opened in 2002, spends much of her time marketing her products

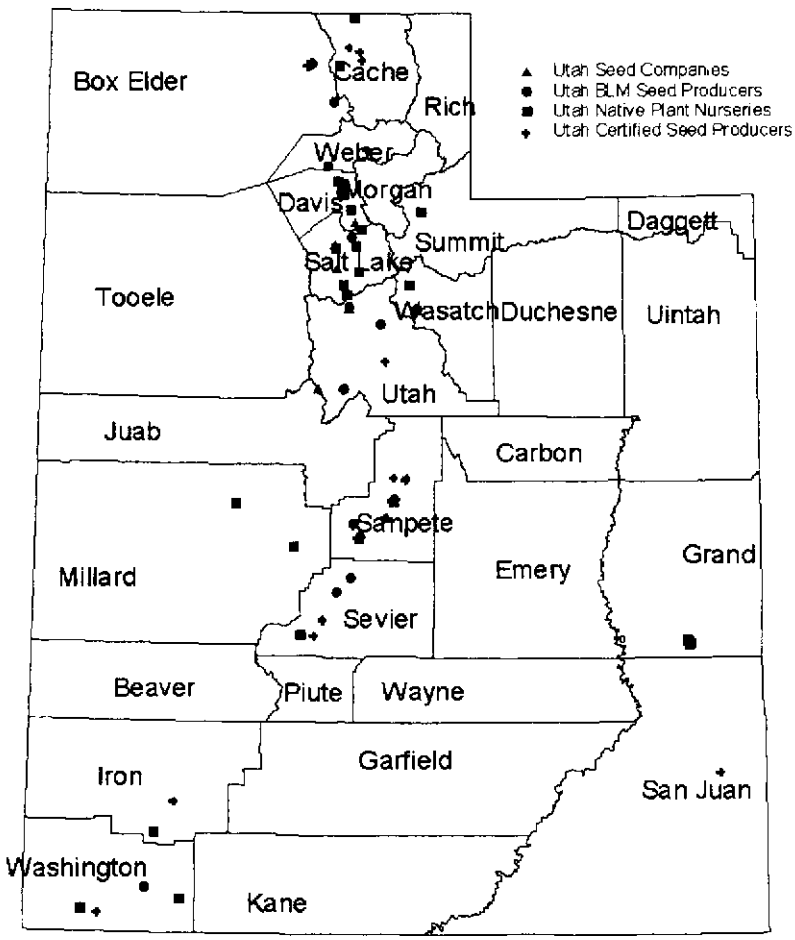

Figure 3-2. Utah native plant suppliers. Source: Lone Peak Conservation Nursery.

and educating the public on native plant choice and care. Warner and her staff spend considerable time answering native plant questions from the public. She feels that while customer education takes up time that could otherwise be used to grow plants, most customers appreciate the information they receive. Most of Warner's clients are repeat customers who have learned to appreciate the plants she sells. This year, the nursery is expanding and will offer garden design and plant care workshops to customers.

Competition and Cooperation Among Utah Growers

Utah native plant growers operate through an interesting relationship hinged on cooperation and competition. Some sell seeds, seedlings, and/or potted plants to each other as well as to wholesale distributors, contract customers, retail nurseries, and end users. Customer interviewees tell us that some seedlings are bought as liner stock which container growers can pot and grow out into typical one gallon container sizes where they are then directly sold to end-users or wholesale distributers.

Growers are usually passionate about their work, and readily exchange growing tips with other growers. However, some find it difficult, especially in small town settings, to make decisions based on their business needs that might place them in a competitive advantage against someone who has helped them in the past. For this reason, growers are encouraged to form personal alliances, and find ways to reward colleagues for exchanged information. For example, some growers who share trade information may decide to inform other growers about their customer needs when they cannot fill the quantity, size or species requested by the order. In this way, local growers are better able to compete in regional markets.

Cooperation works especially well when partnerships are formed to offer complementary services or products. A grower who specializes in seedling production may share business with another grower who specializes in the production of potted native plants in 1 to 5 gallon container sizes. At the 2003 Utah Green Conference trade show, a group of Utah growers who have formed the Intermountain Native Plant Growers

Association had a booth. This association is a cooperative which aims to strengthen the role of Utah growers in regional markets and increase green industry recognition for native plant growers affiliated with the Utah Nursery and Landscape Association. Faculty from Utah State University's agricultural research facilities for native plant production hope to work with the Utah Chapter of the Native Plant Society and the Intermountain Native Plant Growers to produce a line of plants labeled as "Utah's Choice" products. These products, similar to "Plant Select" products found at Colorado's Pro-Green conference (Colorado State University et. al. 2003), will be evaluated for their aesthetic and functional traits as well as their ability to adapt to waterwise gardens in Utah soils and climates. Roger Kjelgren (USU Department of Plants, Soils and Biometeorology, personal communication) is leading this effort.

Competition among Utah growers often occurs over contract bids for large quantities of plant stock, the benefit being that more plant sales are focused on a smaller number of transactions. Interviews with Lone Peak Conservation Nursery customers suggest that some growers resent competition with the state nursery for bids on publicly and privately contracted restoration projects. They argue that contract bids, offered by private land management and mine reclamation projects, should be available only to private sector nurseries. Other growers recognize the state nursery as a valuable supplier of seedling material produced by few other growers in the state, and believe nursery sales appropriately fulfill Lone Peak Conservation Nursery's state mandate to supply conservation plant material. When asked about their view on the appropriate role of the state nursery, 77% of survey respondents agree that Lone Peak Conservation Nursery

should sell source identified plants, and 73% agree that Lone Peak Conservation Nursery should be a risk taker in the market (refer to Table 3-2).

Table 3-2.
Landscape Professionals' Views on the Role of Lone Peak Conservation Nursery

Agree or Disagree with the following statements on a scale of 1 to 10...	Strongly Disagree (1-2)	Disagree (3-4)	Neutral (5-6)	Agree (7-8)	Strongly Agree (9-10)
Lone Peak Conservation Nursery should specialize in growing native plants that can be used for conservation purposes only. (4) n=120	36%	32%	17%	7%	8%
It is appropriate for Lone Peak Conservation Nursery to be a risk taker in developing new native plant markets. (8) n=120	4%	6%	13%	43%	34%
Lone Peak Conservation Nursery should be a source identified plant supplier. (8) n=116	3%	4%	20%	43%	30%
Lone Peak Conservation Nursery is an important source of information for the native plant market. (8) n=117	1%	4%	26%	35%	34%

Ironically, Utah growers are dependent on the state nursery for market and production information and seedling products, yet they compete with the nursery as they do with each other. Lone Peak Conservation Nursery's plant availability may require state leaders to re-define their mandate in terms of the broader meaning that "conservation" has come to mean for landscape professional working in private and public sectors today. Urban land management needs also require large quantities of conservation grade native plants that meet project specifications for aesthetical reasons as well as for their ecological function.

DILEMMAS OF NATIVE PLANT SUPPLIERS

The ability of native plant suppliers to determine which species to grow to fit traditional demand can be difficult. Native seed and plant suppliers attending the 2001 Native Seed Symposium held in Boise, Idaho, voiced concern over the seemingly unstable market demand for their products. The demand for native plant materials used in conservation can be unstable due to the nature of restoration needs based on unpredictable fire occurrences, budget-cycle availability of public agencies, and the nation-wide decline of agriculturally related land use. Many attendees expressed frustration in dealing with the unpredictability of demand swings which often leave many growers with surplus stock or lost opportunity to sell volumes of certain species in sudden unexpected demand. These factors have encouraged green industry discussion of the need to reduce production speculation through the creation of alternative native plant niche markets and the restructuring of contract growing procedures.

Utah native plant suppliers have conflicting ideas about the directions their nurseries should take and how they should relate to the larger green industry. Many native plant growers have a strong philosophically-based motive to increase awareness of native plant species and to strengthen their availability through green industry suppliers. Others feel the need to diversify their native plant sales with sure-selling crops such as water wise adapted exotics, and other flowering annuals which may or may not be waterwise. Other growers believe native plant consumers should expect to find highly specialized products on the market, and the nature of native plant products should require

them to be source identified and genetically certified. These people also fear that growing demand for generalized native plants may limit the availability of sophisticated native plant products critical to the success of statewide efforts to preserve species richness and manage Utah lands more sustainably.

Utah growers have the ability to fill specific niches in the local native plant market because of their proximity to increasing in-state demand and the perception that local products can best meet the requirements for local projects. While Utah native plant growers search for winning business strategies that suit their perceptions of what native plant products should be, special consideration should be given to the participation of Lone Peak Conservation Nursery in local markets and its ability to meet the interests of public and private sector demand. Continued collaboration between industry educators, growers, landscape professionals and researchers is needed to understand continuing changes in the native plant market and how to balance important native plant issues relevant to public and private sector interests.

CONCLUSIONS AND DISCUSSION

The dilemmas that Lone Peak Conservation Nursery and other Utah native plant suppliers face are partly related to the difficulties involved in turning native plants into market commodities. The fundamental contradiction inherent in native plant products is that ecological and market boundaries and needs do not match. The ecological tendency is for plants to diversify in adapting to specialized ecological niches and to become native

to a place. Thus nature assigns native plants to geographical ranges within particular plant communities and often in specialized locations. Our findings confirmed by others suggest the market's economic tendency is for products to be homogenized and generalized as they are dispersed to more urban based consumers over larger territories. Thus the expanding market creates a new virtual geographic range for native plant products. Interestingly, the political arena for natural resource management mediates this contradiction to a certain degree by assigning ecological stewardship responsibilities to public agencies who research and develop native plant products and counter act the market's globalizing effects through the promotion of appropriate labeling for plant and seed source identification. Lone Peak Conservation Nursery managers find themselves caught in a dilemma caused by the contradiction of private and public market pressures. On the one hand, the nursery must operate with a focus on ecological stewardship for the interests of the state of Utah. On the other, Lone Peak Conservation Nursery encounters many practical constraints while struggling to meet overhead costs, which our findings suggest may be met by accommodating new native plant users in urban areas who are not constrained in their plant choice by seed and plant source identification standards.

This fundamental contradiction helps to explain why native plant suppliers often have trouble figuring out a viable marketing strategy, and it underlies the often spirited philosophical and ethical debates about the appropriate use of native plants. Opinions about the use of native plants tend to fall along a spectrum anchored on one end by an ecologically driven philosophy that advocates the use of source identified native plants in all circumstances, and anchored on the other end by a market-driven pragmatism that

advocates meeting landscape objectives using the most cost-effective plant material that will meet project specifications.

The findings from this research raise several interesting questions and issues. First, when people talk about native plants, they beg the questions, "Native to where?" and "How native is native?" The level of spatial specificity used to define native plants must be carefully considered when labeling and marketing native plant products. This is a rich arena for further dialogue between native plant professionals and enthusiasts involved in industry, government, academia, and the non-profit sector.

Second, if ever there were a product that by its very nature should give an advantage to local growers, you would think it would be native plants. The image of California growers selling Utah native plants to Utahns invokes the idiom of "taking coals to Newcastle" or the joke about "selling ice to Eskimos." While the climate in west coast states may give growers there the market advantage of longer growing seasons, the difficulty of acclimating locally adapted native plants back into their native habitats elsewhere goes to the very heart of what defines a native plant, and that is the place to which it belongs, as opposed to the people who may own it. Utah native plant growers need to take advantage of being from the same place as its plants.

A final issue involves definitions of conservation and restoration. In perception and practice, conservation and restoration have generally been interpreted to mean activities that take place in wildlands and rural areas. Much of the emerging demand for native plants comes from an expanded understanding of conservation and from people's

attempts to engage in conservation efforts in urban areas and to lessen the ecological gradient between urban and wildlands. Public consensus about the contemporary meaning of conservation has direct implications for Lone Peak Conservation Nursery's long-range planning since the nursery operates under a mandate and mission to meet conservation objectives throughout the state of Utah. The meaning of conservation also has implications for Utah native plants growers as they search for creative and viable business strategies suitable to their truly unique and interesting product.

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CHAPTER 4

THESIS CONCLUSION

As the demand for native plant use in Utah continues to grow, landscape professionals will increasingly be challenged to provide high quality results using native plant products. Continued collaboration between industry educators, growers, landscape professionals and researchers is needed to understand continuing changes in the native plant market and how to balance important native plant issues relevant to public and private sector interests.

The findings from this research raise several interesting questions and issues. After people have decided to use native plants, and they look for native plant sources that will cater to a segmented market with demand hinged on the perceived value of specialized native plant products to meet varying and multiple landscape objectives. When people talk about native plants, they beg the questions, "Native to where?" and "How native is native?" The level of spatial specificity used to define native plants must be carefully considered when labeling and marketing native plant products. This is a rich arena for further dialogue between native plant professionals and enthusiasts involved in industry, government, academia, and the non-profit sector. In perception and practice, conservation and restoration have generally been interpreted to mean activities that take place in wildlands and rural areas.

Much of the emerging demand for native plants comes from an expanded understanding of conservation and from people's attempts to engage in conservation

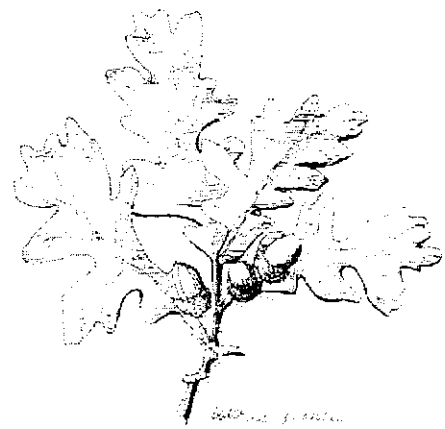
efforts in urban areas and to lessen the landscape gradient between urban and wildlands. Public consensus about the contemporary meaning of conservation has direct implications for Lone Peak Conservation Nursery's long-range planning since the nursery operates under a mandate and mission to meet conservation objectives throughout the state of Utah. The meaning of conservation also has implications for Utah native plants growers as they search for creative and viable business strategies suitable to their truly unique and interesting product.

APPENDICES

Appendix 1

ASLA Membership Survey

Native Plant Use in Utah: Attitudes and Practices of Landscape Professionals



Lone Peak Conservation Nursery
State of Utah

Utah State University

Natural Resource and Environmental Policy Program

Department of Landscape Architecture & Environmental Planning

Utah State UNIVERSITY

NATURAL RESOURCE AND
ENVIRONMENTAL POLICY PROGRAM
Logan, Utah 84322-5265
Phone: (435) 797- 2797
FAX: (435) 797- 3526

April 2002

Dear Landscape Professional,

We are conducting research to better understand the market for native plants in Utah. This research is being conducted by the Natural Resource and Environmental Policy Program for Lone Peak Conservation Nursery in Draper, Utah (part of the Utah Division of Forestry, Fire and State Lands). The research is supported by a grant from the United States Department of Agriculture. Lone Peak Conservation Nursery is the state nursery with a mandate to grow and supply conservation plants. Recent changes in their sales and customer profiles suggest that the market for native plants in Utah is growing. We are especially interested to find out about landscape professionals' use and knowledge of native plants. While we have an interest in all uses for native plants, we are especially interested in the demand for their use in urban settings.

Because we are interested in landscape uses of native plants, **we are surveying all of the members of the Utah Chapter of the American Society of Landscape Architects**. These members represent a diverse group of landscape professionals working in both the public and private sectors of the economy. The results of this study **will help native plant suppliers to better understand your needs as native plant users**, and especially will help the state nursery to better define its role in the native plant market.

Please help us by completing this survey. The survey will take approximately 15 minutes to complete. **Your responses and comments will be kept *completely confidential*.** Therefore, please do not place your name on this survey. The number at the bottom of this page will be used only to track survey returns and send reminder notices. Please **note that participation in this research is voluntary**. Feel free to contact us if you are interested in the survey results.

If you cannot complete the questionnaire at the conference today, please return it to us in this postage-paid envelope. **We would like to have all of the surveys returned by April 30, 2002.** If you have any questions, please email or call us at the addresses and numbers listed below.

Respectfully,

Joanna Endter-Wada

Joanna Endter-Wada, Ph.D.
Research Director
Natural Resource and
Environmental Policy Program
(435) 797-2487 (office)
endter@cnr.usu.edu

Virginia Harding

Virginia Harding
Graduate Research Assistant
Landscape Architecture &
Environmental Planning Dept.
(435) 512-2244 (cell phone)
vah@cc.usu.edu

Survey Tracking No. _____

For the purpose of this survey, the definition of a native plant is any plant species known to have existed within a geographical area prior to western European settlement. For your reference, a list of common Utah native plants has been included with this survey. Please feel free to keep this complimentary Utah native plant list.

If you need more space to explain your answers, use any blank space in the questionnaire. If you have no opinion or do not know the answer to a question, write DK indicating "don't know" in the margin and go on to the next question. Please do not discuss your answers with anyone, since our goal is to solicit independent opinions from a variety of individuals. The final analyses, however, will only examine group data. All of your responses will be kept strictly confidential! We really appreciate your thoughtful and honest responses.

PART A: PROFESSIONAL BACKGROUND

A1. Fill in the Blanks

Job title: _____ Years in practice: _____

Work specialty: _____ Years working in Utah:_____

A2. How did you get started in the landscape profession?

_____

A3. Check all that apply to you in regards to:

Education:

___ Bachelor's degree in Landscape Architecture
___ Master's degree in Landscape Architecture
___ I have a degree(s) in the related field of _____
___ I have in-field training experience required for my job.

Certification/Licensing: I am certified or licensed through...

___ the Landscape Architect Registration Examination (LARE)
___ the Utah Nursery and Landscape Association
___ other (*specify*): _____

Associations in addition to ASLA:

____ Utah Nursery and Landscape Association ____ American Planners Association
____ Irrigation Association ____ Other: _____
____ Council of Landscape Architectural Registration Boards (CLARB)

A4. What percentage of your work occurs in the following areas?

_____ Northeast Utah (Cache County)
_____ Brigham City to Bountiful (Weber Basin)
_____ Salt Lake County (Park City area)
_____ Utah County (Lehi–Nephi or Heber areas)
_____ Central Utah (Price and Joseph areas)
_____ Southwest Utah (Moab area)
_____ Greater St. George Area
_____ Elsewhere in Utah (*name/location*): _____
_____ Out of State (*name/location*): _____

100% = TOTAL

A5. What percentage of your work is:

_____ Commercial
_____ Residential
_____ Restoration
_____ Municipal (*list agencies*): _____
_____ State (*list agencies*): _____
_____ Federal (*list agencies*): _____
_____ Other (*please explain*): _____

100% = TOTAL

PART B: YOUR VIEWS ON THE USE OF NATIVE PLANTS

This next set of questions is designed to solicit your views on native plant use. Please rate your level of agreement with the following statements, where 1 means you "strongly disagree" and 10 means you "strongly agree."

B1. It is unreasonable to design landscapes that rely exclusively on native plants.
Strongly Disagree 1 2 3 4 5 6 7 8 9 10 Strongly Agree

B2. Mixing native plants with locally adapted exotics should *not* be done.
Strongly Disagree 1 2 3 4 5 6 7 8 9 10 Strongly Agree

B3. Using native plants in managed landscapes is important for preserving genetic diversity that could be lost in the wild.
Strongly Disagree 1 2 3 4 5 6 7 8 9 10 Strongly Agree

B4. Use of native plants is always preferable to the use of non-native plants if they can achieve the same landscape objectives.
Strongly Disagree 1 2 3 4 5 6 7 8 9 10 Strongly Agree

B5. As long as plants meet a specific conservation objective, it is not critical that they be native to the area.
Strongly Disagree 1 2 3 4 5 6 7 8 9 10 Strongly Agree

B6. Using native plants in urban gardens is important for maintaining a connection to the place where one lives.
Strongly Disagree 1 2 3 4 5 6 7 8 9 10 Strongly Agree

B7. Using native plants in urban gardens helps people learn about the local ecology.
Strongly Disagree 1 2 3 4 5 6 7 8 9 10 Strongly Agree

B8. By using native plants, urban gardeners can contribute to ecological restoration.
Strongly Disagree 1 2 3 4 5 6 7 8 9 10 Strongly Agree

B9. It is critical to use site specific native plants in restoration projects.
Strongly Disagree 1 2 3 4 5 6 7 8 9 10 Strongly Agree

In this next set of questions, we want you to think about some of the practical trade-offs you may make when deciding whether or not to use native plants. Please rate your level of agreement with the following statements, where 1 means you "strongly disagree" and 10 means you "strongly agree."

B10. The use of native plants limits the use of color in landscape design.
Strongly Disagree 1 2 3 4 5 6 7 8 9 10 Strongly Agree

B11. Native plants blend appropriately with any architectural style.
Strongly Disagree 1 2 3 4 5 6 7 8 9 10 Strongly Agree

B12. For urban landscapes, it is more important to use drought tolerant or waterwise plants, even if they are not native, than to use native plants that may not be waterwise.
Strongly Disagree 1 2 3 4 5 6 7 8 9 10 Strongly Agree

B13. Native plant use promotes a regionally distinctive character in landscape designs.
Strongly Disagree 1 2 3 4 5 6 7 8 9 10 Strongly Agree

B14. The use of native plants limits the opportunity to adequately shade taller structures.
Strongly Disagree 1 2 3 4 5 6 7 8 9 10 Strongly Agree

B15. It is difficult to envision how native plants will look in cultivated gardens.
Strongly Disagree 1 2 3 4 5 6 7 8 9 10 Strongly Agree

PART C: YOUR EXPERIENCE USING NATIVE PLANTS

C1. In your *present* work, do you use native plants? *Check one.*

___ NA, I do not specify plants in my practice. ***Skip to PART D***
___ NO, I do not use native plants (0% of the time).
___ YES, I use native plants *sometimes* (1-20% of the time). ***Skip to C3***
___ YES, I use native plants *occasionally* (21-40% of the time). ***Skip to C3***
___ YES, I use native plants *about half of the time* (41-60% of the time). ***Skip to C3***
___ YES, I use native plants *frequently* (61- 80% of the time). ***Skip to C3***
___ YES, I use native plants *most of the time* (81-100% of the time). ***Skip to C3***

C2. If you *do not* use native plants presently, check whether you:

a. ___ Have used them in the past.
b. ___ Would consider using them in the future.

c. Why have you chosen not to use native plants at the present time?
_____
_____
_____

C3. If you presently use native plants, do you use them *(check one)*:

a. _____ *More frequently* than you did five years ago?
_____ *Less frequently* than you did five years ago?
_____ *About the same* as you did five years ago?

b. Please explain the reasons for your answer above:

_____
_____
_____
_____

C4. When it comes to using native plants, I feel that *(check one)*:

_____ I am an *expert* native plant user
_____ I am an *experienced* native plant user
_____ I am an *average* native plant user
_____ I am a *novice* native plant user
_____ I have *no knowledge* of native plant use ***(Skip to C6)***

C5. Which sources have you depended upon the most for information about native plants?
Check the three sources that you depend upon the most.

___ Word of mouth
___ Demonstration gardens
___ Use in another landscape (other than a Demonstration garden)
___ State Nursery (Lone Peak Conservation Nursery)
___ Other: _____
___ USU Extension Service
___ Formal Education
___ Radio/ Television
___ Books/ Magazines
___ Internet

C6. Would you use native plants more often if you knew more about the following characteristics of native plants? *Check all that apply.*

___ USDA Zone requirements
___ Genetic source
___ Adaptation constraints
___ Specific water requirements
___ Growth habits
___ Blooming cycle
___ Soil requirements
___ Which native plants grow well together

C7. How often is the use of native plants the primary objective in your work? *Check one.*

_____ Never _____ Sometimes _____ Frequently _____ Always

C8. If you use, or have used native plants in the past to meet the following objectives, how specific are your requirements for the native plant SOURCE? *Check the most appropriate column on each line.*

OBJECTIVE	Native to a specific site location	Native to an ecological region	Native to the Western United States	NA
Fire Rehabilitation				
Mine Reclamation				
Erosion Control				
Shelter Belts / Wind Breaks				
Control of Invasive Species				
Wildlife Habitat				
Creating a Sense of Place				
Water Conservation				
Reduced Landscape Maintenance				
As a Kentucky Bluegrass Alternative				
Reduced Use of Fertilizers and Pesticides				
For Shading and Increased Energy Efficiency				
Enhancing Biodiversity				
Other Objective*				

**Please tell us what your other objective is:* _____*

C9. On a scale of 1 to 10, with 1 meaning there is *"no limitation"* and 10 meaning there is a *"serious limitation,"* how would you rate the following factors in terms of whether they pose limitations to your use of native plants?

	No Limitation									*Serious Limitation*
Cost is too high	1	2	3	4	5	6	7	8	9	10
Desired plant species are not available	1	2	3	4	5	6	7	8	9	10
Desired plant sizes are not available	1	2	3	4	5	6	7	8	9	10
Customer unfamiliarity in caring for native plants	1	2	3	4	5	6	7	8	9	10
Customer perception that native plants are not as beautiful as traditional garden plants	1	2	3	4	5	6	7	8	9	10
Poor quality of plants/seeds after shipment	1	2	3	4	5	6	7	8	9	10
Finished landscape did not turn out as planned	1	2	3	4	5	6	7	8	9	10
Limited knowledge of plant propagation and care	1	2	3	4	5	6	7	8	9	10
Limited knowledge about specific native plant use	1	2	3	4	5	6	7	8	9	10
Other reason for using or not using native plants	1	2	3	4	5	6	7	8	9	10

List other reason: _____

PART D: PRODUCTS AND SERVICES

This next section relates to your experience obtaining specific native plant products and services. If you are not at all involved in the ordering process for the plants you specify in your designs, please skip to part E.

D1. Please rate the importance of the following native plant products and services with 1 indicating "*not at all important*" and 10 indicating "*very important.*"

	Not at all Important									*Very Important*
a. Native plant source identification	1	2	3	4	5	6	7	8	9	10
b. Product certification and labeling	1	2	3	4	5	6	7	8	9	10
c. Size of available plants	1	2	3	4	5	6	7	8	9	10
d. Product guarantee	1	2	3	4	5	6	7	8	9	10
e. On time delivery	1	2	3	4	5	6	7	8	9	10
f. Competitive price	1	2	3	4	5	6	7	8	9	10
g. Buyer education on plants' abilities and constraints	1	2	3	4	5	6	7	8	9	10
h. Custom growing service for specialized orders	1	2	3	4	5	6	7	8	9	10

D2. What is the minimum time you need from the time you place an order to the time it is delivered? *Fill in the **minimum** delivery time you expect in number of months, weeks, or days.*

SEED:	#____ Months	#____ Weeks	#____ Days	____ DK
BARE ROOT:	#____ Months	#____ Weeks	#____ Days	____ DK
CONTAINER:	#____ Months	#____ Weeks	#____ Days	____ DK
SPECIAL REQUEST:	#____ Months	#____ Weeks	#____ Days	____ DK

D3. Of the total volume of native plants that you use, what percentages are bought as:

_____ Seed
_____ Bare root
_____ Tublings
_____ 1 Gal+ Container stock

100% = Total

D4a. How often do you *contract* with growers for the native plants you need? *Circle one.*

Never 1-20% 21-40% 41-60? 61-80% 81-100%

b. In your experience, what are the *benefits* of contracting for native plants?

_____

c. In your experience, what are the *limitations* of contracting for native plants?

_____

D5. The following questions refer to your suppliers of native plants.

SEED Suppliers for Native Plants:

a. From how many different suppliers do you order native plant seed? _____

b. In which states are your native plant seed suppliers located? _____
_____

c. How do you order native plant seeds? *Check all that apply.*
____Internet ____Mail Order ____Phone ____In person

d. Name the native plant seed suppliers that you order from most often.
_____
_____

BARE ROOT Suppliers of Native Plants:

e. From how many different suppliers do you order bare root native plants? _____

f. In which states are your bare root native plant suppliers located? _____
_____

g. How do you order bare root native plants? *Check all that apply.*
____ Internet ____ Mail Order ____Phone ____In person

h. Name the suppliers of bare root native plant stock that you order from most often.
_____
_____

CONTAINER STOCK Suppliers of Native Plants:

i. From how many different suppliers do you order native plants in containers? _____

j. In which states are your suppliers of native plant container stock located? _____
_____

k. How do you order native plant container stock? *Check all that apply.*
____ Internet ____ Mail Order ____Phone ____In person

l. Name the suppliers of native plant container stock that you order from most often.
_____
_____

D6. Which native plant species would you like to use, but for which you cannot find a supplier?
_____
_____

D7. What *sizes* of native plants would you like to use, but for which you cannot find a supplier?
_____
_____

PART E: YOUR VIEWS OF THE NATIVE PLANT MARKET

The following questions are designed to solicit your opinions about what is going on in the native plant market and the appropriate role for Lone Peak Conservation Nursery in that market. Please rate your level of agreement with the following statements, where 1 means you "strongly disagree" and 10 means you "strongly agree."

E1. The demand for native plants in Utah is growing faster than the supply.
Strongly Disagree 1 2 3 4 5 6 7 8 9 10 Strongly Agree

E2. The demand for larger sizes of native plants in Utah is growing faster than the supply.
Strongly Disagree 1 2 3 4 5 6 7 8 9 10 Strongly Agree

E3. I would be willing to pay more for native plants if I knew they were source identified.
Strongly Disagree 1 2 3 4 5 6 7 8 9 10 Strongly Agree

E4. My clients generally rely upon me to select the plant material for my projects and, thus, I have a lot of influence over whether native plants get used.
Strongly Disagree 1 2 3 4 5 6 7 8 9 10 Strongly Agree

E5. I prefer to buy native plants from Utah growers.
Strongly Disagree 1 2 3 4 5 6 7 8 9 10 Strongly Agree

E6. The markets for native plants are generally regional in scope.
Strongly Disagree 1 2 3 4 5 6 7 8 9 10 Strongly Agree

E7. Consumers are generally confused about what constitutes a "native plant."
Strongly Disagree 1 2 3 4 5 6 7 8 9 10 Strongly Agree

E8. Labeling of native plants needs to include more information on the geographical range for which a particular plant is considered native.
Strongly Disagree 1 2 3 4 5 6 7 8 9 10 Strongly Agree

E9. Sellers of native plants are willing to share information with one another concerning the successful production of native plant products.
Strongly Disagree 1 2 3 4 5 6 7 8 9 10 Strongly Agree

E10. Lone Peak Conservation Nursery should specialize in growing native plants that can be used for conservation purposes only.
Strongly Disagree 1 2 3 4 5 6 7 8 9 10 Strongly Agree

E11. It is appropriate for Lone Peak Conservation Nursery to be a risk taker in developing new native plant markets.
Strongly Disagree 1 2 3 4 5 6 7 8 9 10 Strongly Agree

E12. Lone Peak Conservation Nursery should be a source identified plant supplier.
Strongly Disagree 1 2 3 4 5 6 7 8 9 10 Strongly Agree

E13. Lone Peak Conservation Nursery is an important source of information for the native plant market.
Strongly Disagree 1 2 3 4 5 6 7 8 9 10 Strongly Agree

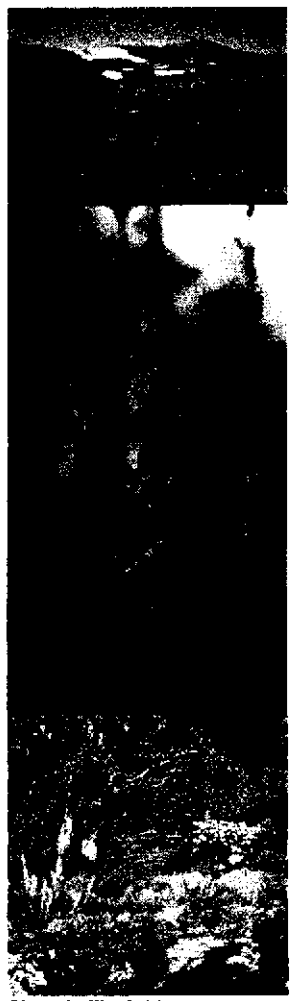
Please use this page to make additional comments, especially concerning any aspects of your use and opinions of native plants that may not have been adequately covered in this survey.

Appendix 2

Native Plant Reference List

Utah Native Plant List

April 2002



Photos by Wendy Mee

Lone Peak Conservation Nursery
State of Utah

Utah State University

Natural Resource and Environmental Policy Program

Department of Landscape Architecture & Environmental Planning

Utah Native Plant List

Plants are listed alphabetically by scientific name.

EVERGREEN TREES	
Abies concolor	WHITE FIR
Cercocarpus ledifolius	CURL-LEAF MTN. MAHOGANY
Juniperus osteosperma	UTAH JUNIPER
Juniperus scopulorum	ROCKY MOUNTAIN JUNIPER
Juniperus virginiana	EASTERN RED CEDAR
Picea pungens	BLUE SPRUCE
Pinus aristata	BRISTLECONE PINE
Pinus contorta var. latifolia	LODGE POLE PINE
Pinus edulis	PINYON PINE
Pinus flexilis	LIMBER PINE
Pinus ponderosa	PONDEROSA PINE
Pinus strobiformis	SOUTHWESTERN WHITE PINE
Psuedotsuga menziesii	DOUGLAS FIR

DECIDUOUS TREES	
Acer glabrum	CANYON MAPLE
Acer grandidentatum	BIGTOOTH MAPLE
Alnus tenuifolia	THINLEAF ALDER
Betula occidentalis	WESTERN WATER BIRCH
Celtis reticulata	NETTLEAF HACKBERRY
Cercis occidentalis	WESTER REDBUD
Cercocarpus montanus	MOUNTAIN MAHOGANY
Crataegus douglasii	RIVER HAWTHORN
Fraxinus anomala	SINGLE LEAF ASH
Fraxinus velutina	VELVET ASH
Populus angustifolia	NARROWLEAF COTTONWOOD
Populus fremontii	FREEMONT COTTONWOOD
Populus tremuloides	QUAKING ASPEN
Quercus gambelii	GAMBEL OAK
Robinia neomexicana	NEW MEXICO LOCUST
Salix alba vitellina	GOLDEN WILLOW
Salix amygdaloides	PEACHLEAF WILLOW
Salix exigua	COYOTE WILLOW

SHRUBS	
Amelanchier alnifolia	SERVICE BERRY
Amelanchier utahensis	UTAH SERVICE BERRY
Amorpha canescens	FALSE INDIGO
Arctostaphylos patula	GREEN LEAF MANZANITA
Arctostaphylos uva-ursi	KINNIKINICK, BEARBERRY
Artemsia cana	SILVER SAGEBRUSH
Artemsia filifolia	SAND SAGEBRUSH
Artemsia frigida	FRINGED SAGEBRUSH
Artemsia ludoviciana	PRAIRIE SAGEBRUSH
Artemsia nova	BLACK SAGEBRUSH
Artemisia tridentata	BIG BASIN SAGE
Atriplex canescens	FOUR WING SALT BUSH
Atriplex confertifolia	SHADE SCALE
Atriplex gardneri	SALTBRUSH
Ceanothus intergerrimus	DEER BRUSH
Ceanothus martinii	UTAH MOUNTAIN LILAC
Ceratoides lanata	WINTERFAT
Chamaebatiaria millefolium	DESERT FERNBUSH
Chilopsis linearis	DESERT WILLOW
Chrysothamnus ssp.	RABBITBRUSH
Clematis ligusticifolia	WHITE VIRGIN'S BOWER
Cornus sericea	RED-OSIER DOGWOOD
Ephedra ssp.	EPHEDRA, MORMON TEA
Eriogonum corymbosum	FREEMONT'S BUCKWHEAT
Fallugia paradoxa	APACHE PLUME
Grayia spinosa	SNAKEBRUSH/ HOP SAGE
Holodiscus dumosa	MOUNTAIN SPRAY
Jamesia americana	WAXFLOWER, CLIFF JAMESIA
Mahonia fremontii	FREEMONT MAHONIA
Mahonia repens	CREEPING OREGON GRAPE
Pachystima myrsinites	MOUNTAIN LOVER
Peraphyllum ramosissimum	SQUAW APPLE
Petrophytum caespitosum	ROCK SPIREA, TUFTED ROCK MAT
Philadelphus microphyllus	LITTLELEAF MOCKORANGE
Physocarpus malvaceus	MOUNTAIN NINEBARK
Potentilla fruticosa	SHRUBBY CINQUEFOIL
Prunus bessyii	SAND CHERRY
Prunus virginiana	CHOKE CHERRY

SHRUBS CONT...	
Purshia mexicana var. stansburia	CLIFFROSE
Purshia tridentata	ANTELOPE BITTERBRUSH
Rhus glabra	SMOOTH SUMAC
Rhus trilobata	OAKBRUSH SUMAC
Ribes aureum	GOLDEN CURRENT
Rosa woodsii	WOODS ROSE
Salvia dorrii	DORR'S SAGE
Sambucus caerulea	BLUE ELDERBERRY
Sheperdia argentea	SILVER BUFFALOBERRY
Sheperdia rotundifolia	ROUNDLEAF BUFFALOBERRY
Sorbus scopulina	ROCKY MOUNTAIN ASH
Symphoricarpos occidentalis	MOUNTAIN SNOWBERRY
Tetradymia	HORSEBRUSH
Yucca angustissima	NARROW LEAVED YUCCA
Yucca elata	SOAPTREE YUCCA
Yucca glauca	GREAT PLAINS YUCCA
PERENNIALS	
Achillea millifolium	MILFOIL YARROW
Actaea rubra	BANEBERRY
Agastache ssp.	WILD HYSSOP
Allium ssp.	WILD ONION
Anaphalis margaritacea	PEARLY EVERLASTING
Anemone patens	WIND FLOWER
Antennaria dimorpha	PUSSY TOES
Antennaria microphylla	PEARLY PUSSY TOES
Apocynum	SPREADING DOGBANE
Aquilegia ssp.	COLUMBINE
Arabis ssp.	ROCKCRESS
Arenaria ssp.	SANDWORT
Argemone munita	ARMED PRICKLY POPPY
Arnica cordifolia	HEART LEAF ARNICEA
Artemesia frigida	FRINGED SAGE
Artemesia ludoviciana	PRAIRIE SAGEBRUSH
Asclepias asperula	SPIDER MILKWEED
Asclepias tuberosa	BUTTERFLY WEED
Aster ssp.	ASTER
Astragalus ssp.	MILKVETCH
Balsamorhiza ssp.	BALSAMROOT
Berberis fendlerii	FREEMONT BARBERRY
Brickellia grandiflora	TASSELFLOWER
Calochortus nuttallii	SEGO LILY
Calylophus lavandulifolia	EVENING PRIMROSE
Camassia quamash	BLUE CAMAS

PERENNIALS CONT...	
Campanula rotundifolia	BELL FLOWER
Castelleja ssp.	INDIAN PAINTBRUSH
Chaenactis douglasii	DUSTY MAIDENS
Clemantis hirsutissima	LIONSBEARD, SUGARBOWLS
Crepis acuminata	HAWKSBEARD
Cryptantha flava	YELLOW FORGET-ME-NOT
Cryptantha humilis	DWARF FORGET-ME-NOT
Delphinium nuttalianum	PERRENIAL LARKSPUR
Epilobium angustifolium	FIREWEED
Erigeron ssp.	YELLOW DAISY, FLEABANE
Eriogonum ssp.	BUCKWHEAT
Eriophyllum lanatum	WOOLYLEAF, OREGON SUNSHINE
Erysimum asperum	PRETTY WALLFLOWER
Erythronium grandiflorum	GLACIER LILY, DOGTOOTH VIOLET
Fragaria vesca	WOODLAND STRAWBERRY
Fritillaria pudica	YELLOW BELL
Gaillardia aristata	BLANKETFLOWER
Gaura coccinea	SCARLOT GUARA
Geranium viscosissimum	STICKY PURPLE GERANIUM
Geum triflorum	PRAIRIE SMOKE, OLD MANS BEARD
Gilia aggregata	SCARLET GILIA
Haplopappus acaulis	GOLDENWEED, JIMMYWEED
Hedysarum boreale	SWEETVETCH
Helenium hoopesii	ORANGE SNEEZEWEED
Helianthella uniflora	LITTLE SUNFLOWER
Heterotheca villosa	GOLDEN HOARY ASTER
Heuchera rubescens	CORALBELLS, ALUMROOT
Hydrophyllum capitatum	BALLHEAD WATERLEAF
Hymenoxys acaulis	STEMLESS WOOLYBASE
Iliamna rivularis	WILD HOLLYHOCK
Iris missouriensis	WESTERN BLUEFLAG, MISSOURI IRIS
Lathryus pauciflorus	UTAH SWEETPEA, WILD SWEETPEA
Lesquerella multiceps	BLADDERPOD
Lewisia rediviva	BITTERROOT
Linum species	PERENNIAL FLAX
Linanthastrum nuttallii	FLAX FLOWER
Lomatium ssp.	BISCUITROOT
Lonicera involucrata	UTAH TWINBERRY
Lupinus ssp.	LUPINE
Mentzelia laevicaulis	BLAZING STAR
Mertensia brevistyla	WASATCH BLUEBELL
Mertensia ciliata	MOUNTAIN BLUEBELL
Mertensia oblongifolia	WESTERN BLUEBELL
Mirabilis multiflora	SHOWY FOUR-O-CLOCK

PERENNIALS CONT...		
Monardella odoratissima	CLOVERHEAD HORSEMINT	
Oenothera ssp.	EVENING PRIMROSE, SUNDROPS	
Osmorhiza occidentalis	WESTERN SWEET CICELY	
Oxytropis lambertii	CRAZYWEED, LOCOWEED	
Oxytropis sericea	SILKY CRAZYWEED	
Penstemon ssp.	PENSTEMON, BEARDTONGUE	
Perideria gairdneri	FALSE YARROW	
Phacelia sericea	SILKY PHACELIA	
Phlox hoodii	CARPET PHLOX	
Phlox longifolia	LONGLEAF PHLOX	
Polemonium foliosissimum	LEAFY JACOBSLADDER	
Potentilla gracilis	SHOWY CINQUEFOIL	
Sedum lanceolatum	STONECROP	
Sidalcea oregana	OREGON CHECKERMALLOW	
Silene acaulis	DOUGLAS CAMPION	
Sisyrinchium ssp. Idahoensis	PURPLE-EYED GRASS	
Solidago sparsiflora	GOLDENROD	
Sphaeralcea ssp.	GLOBEMALLOW	
Stanleya pinnata	PRINCE'S PLUME	
Townsendia incana	EASTER DAISY	
Trifolium maci lenturn	LEANCLOVER	
Viguiera multiflora	SHOWY GOLDENEYE	
Viola adunca	BLUE VIOLET	
Viola nuttallii	YELLOW PRAIRIE VIOLET	
Wyethia amplexicaulis	MULES EARS	
Zauschneria latifolia	HUMMINGBIRD FLOWER	
CACTI		
Coryphantha vivapara	NUTTAL'S PINCUSHION	
Echinocereus engelmanii	HEDGE-HOG CACTUS	
Echinocereus triglochidiatus	CLARET CUP	
Opuntia ssp.	COMMON PRICKLYPEAR	
Pediocactus simpsonii	SIMPSON'S FOOTCACTUS	
OTHER		

GRASSES		
Achnatherum hymenoides	INDIAN RICEGRASS	
Achnatherum lettermanii	NEEDLEGRASS	
Aristida purpurea	PRUPLE TRHEEAWN, "NO EAT-UM"	
Bouteloa curtipendula	SIDEOATS GRAMA	
Bouteloa gracilis	BLUE GRAMA	
Bromus anomalus	NODDING BROME	
Bromus carinatus/marginatus	CALIFORNIA, MOUNTAIN BROME	
Buchloe dactyloides	BUFALO GRASS	
Danthonia intermedia	OATGRASS	
Deschampsia caespitosa	TUFTED HAIRGRASS, SALT&PEPPER	
Elymus elymoides	BOTTLEBRUSH SQUIRRELTAIL	
Elymus glaucus	BLUE WILDRYE	
Elymus lanceolatus	THICKSPIKE WHEATGRASS	
Elymus trachycaulus	SLENDER WHEATGRASS	
Festuca idahoensis	IDAHO FESCUE	
Festuca subulata	BEARDED FESCUE	
Hesperostipa comata	NEEDLE AND THREAD GRASS	
Hilaria jamesii	GALLETA CURLY GRASS	
Koeleria macrantha	JUNEGRASS	
Leymus cinereus	GREAT BASIN WILD RYE	
Melica bulbosa	ONION GRASS	
Melica spectabilis	PURPLE ONION GRASS	
Muhlenbergia montana	SCRATCHGRASS	
Muhlenbergia richardsonis	MAT MUHLY	
Pascopyrum smithii	WESTERN WHEATGRASS	
Poa ampla	BIG BLUEGRASS	
Poa curta	WASATCH BLUEGRASS	
Poa fendleriana	MUTTON BLUEGRASS	
Poa secunda	SANDBERGS BLUEGRASS	
Pseudoregneria spicatum	BLUEBUNCH WHEATGRASS	
Schizachyrium scoparium	LITTLE BLUESTEM	
Sporobolus airoides	ALKALI SACATON	
Sporobolus cryptandrus	SAND DROPSEED	
Stipa speciousa	DESERT NEEDLEGRASS	
Stipa viridula	GREEN NEEDLEGRASS	

Most of the native plants listed can be found in the upcomming publication:

Waterwise: Native Plants for Intermountain Landscapes

by Wendy Mee, Jared Barnes, Roger Kjelgren, Richard Sutton, Teresa Cerny and Craig Johnson

Appendix 3

Interview Protocol

UTAH NATIVE PLANT STUDY

Protocol to Guide Interviews with Key People

in the Utah Native Plant Market

Draft: 7/15/2002

I. Interviewee's Involvement with Native Plants

We would start by finding out something about the interviewee's involvement in the native plant market. This will allow us to situate the interviewee and know how to gear the rest of the interview.

Assuming the interviewee is a grower/nursery, we would query about things such as:

- how they got started in the business (entrance into the industry; education)
- why they got involved (their motivations for being in native plants)
- the nature of their business (products and services, market niche, reason for location)
- whether they belong to any nursery associations or producer cooperatives or would have an interest in being involved
- whether their involvement with native plants is a hobby or serious business venture
- their long-term plan

Assuming this person intersects with the native plant market in some other way, this would include finding out about things such as:

- the nature of their involvement with native plants
- how and why they got involved

II. Native Plant Market

Next, we would want see what they can tell us about the native plant market, getting into this discussion by gathering more information about their own experiences. This would include questions about:

- the nature of the product (what is being sold under the label of "native" plants)
- their suppliers (location, species, sizes, shipping)
- their buyers (profile, preferences, needs, demands)
- the overall structure of the market
    - role of retailers/wholesalers
    - involvement of large/small firms
    - geographic scope of the market
    - involvement of Utah growers in supplying demand within the state
    - role of public agencies as both buyers and sellers
- how much of the demand and supply is local and how much comes from other states
- where they see bottlenecks in the market as well as opportunities, especially as they affect Utah growers
- how they would characterize the nature of the tension between cooperation and competition that is generally characteristic of markets of this type

III. Native Plant Knowledge

This discussion topic would focus on exploring the interviewees' knowledge of native plants with the aim of understanding some of the difficulties that may be inherent in growing them and using them in different types of locations. Some of the issues that we would explore include:

- their basic operating knowledge of how to grow native plants well
- which species or types are particularly problematic and which can they grow with relative confidence and success?
- the influence of genetics versus adaption during the establishment period in their eventual growing success
- the success rate for Utah native plants grown other places but then sold in Utah

IV. Philosophy about Native Plants

We would ask questions about their philosophy about the use of native plants, getting at some of the same issues included in Part B and Part E of the landscape architect survey. In general, we want to find out:

- when and where they think native plants should be used
- for what purposes they think native plants should be used
- whether their opinion about the use of native plants varies according to context
- what they think is important about the use of native plants

V. Information Needs and Information Sharing

This portion of the interview would focus on information issues, such as:

- what does the interviewee think is important to know about native plants
- what kinds of information would participants in the native plant market be willing to share and what kinds of information would they consider to be more proprietary
- what information is most critical for promoting native plant use
- who should supply that information and in what forms
- what is the nature of the information sharing networks related to native plants
- what are the best mechanisms for disseminating information about native plants

Appendix 4

2003 Western Native Plant and Seed Suppliers

Western Native Plant and Seed Suppliers - 2003

Company	Address	City	State	Zipcode	Notes	Phone	Fax	Website
Plant Fair Nursery	25524 East Hwy 260 HCR 4 Box 14 D	Payson	Arizona	85541-		(928) 474-8556	(928) 472-8977	plantfair.yournursery.com
Arizona Botanical	1801 Hwy 89 A	Clarkdale	AZ	86324-	Only cactus nursery in the Verde Valley. We also do drought-tolerant landscapes	(928) 634-2166	(928) 634-2166	
Arizona Botanical Gardens	1801 W. Hwy 89A	Clarkdale	AZ	86324-3602	Plants including native cacti. Many plants for Cottonwood, Verde Valley and Sedona. Some hardy enough for Flagstaff. 15% discount to trade.	(928) 634-2166	(928) 634-2166	
Bidde's Nursery	1250 Hwy 89A	Sedona	AZ	86336-5739	Retail. 10% discount with established commercial account	(928) 282-5078		
Civano Nursery, Inc.	5301 S. Houghton Road	Tucson	AZ	85747-	Southwest native and adapted exotic plants, especially from the Sonoran Desert	(520) 546-9200		http://www.civanonursery.com
Desert Survivors Nursery	1020 Starr Pass	Tucson	AZ	85713-	Southwest native plants, especially from the Sonoran Desert, staffed largely by persons with disabilities	(520) 884-8806		
Desert Trees Nursery	8559 N. Camino Del Plata	Tucson	AZ	85741-	Wholesale plants	(800) 873-3541	(520) 297-5035	
Desert Trees Nursery	8559 N Camino Del Plata	Tucson	AZ	85742-		(520) 297-5664	(520) 297-5035	
Fallgarden	P.O. Box 1111	Lakeside	AZ	85929				
Flagstaff Native Plant and Seed	409 West Pine Avenue	Flagstaff	AZ	86001-	Plants and seed. Discount to landscape trade. Contract growing	(928) 773-9406	(928) 214-7351	http://www.nativeplantandseed.com
Flagstaff Native Plant Nursery	1107 N. Navajo Drive	Flagstaff	AZ	86001-	Plants. Contract growing and consultation only	(928) 774-3554		
Gardenmart	747 N. Sixth Street	Prescott	AZ	86301-2018	Some natives available.	(928) 771-9410		
Mountain States Wholesale Nursery	10020 W. Glendale Avenue	Glendale	AZ	85307-	Wholesale, huge selection of Southwest natives. "1 gallons to 36-inch box trees, low water shrubs, groundcovers and trees, many agaves and yuccas."	(623) 247-8559	(623) 247-8564	http://www.mswn.com
Natures Reward	Corner of Postal @ Rte. 66	Flagstaff	AZ	86004-	Plants. Landscaping services.	(928) 714-9492		
Northern Arizona Tree Farms	664 N. Hwy 89	Chino Valley	AZ	86323-9612	Wholesale and retail. Trees and shrubs, salvage plants from development and construction sites.	(928) 636-3663		
Southwestern Native Seeds	P.O Box 50503	Tucson	AZ	85703-	Retail. Wide selection of wild collected native seed			
The Arboretum at Flagstaff	4001 S. Woody Mountain Road	Flagstaff	AZ	86001-	Plants available Mar-November. Seed available March - December. Annual outdoor plant sale- event 3rd weekend in June. Holiday plant sale 1st Saturday in December.	(928) 774-1442	(928) 774-1441	www.thearb.org
Warner's Nursery and Landscaping	1101 E. Butler Ave.	Flagstaff	AZ	86001-	Wholesale and retail. Plants and seed. Various discounts apply. Warner's also has a design build landscape division and maintenance division.	(928) 774-1963	(928) 774-6113	
Wild Seed	P.O. Box 27751	Tempe	AZ	85285-				
Wild Seed	6615 S. 29 St.	Phoenix	AZ	85042-		(602) 276-3536	(602) 276-3524	
Alb Nurseries	P.O. Box 370	San Jacinto	CA	92581	Wholesale Nursery, 1 and 5 gallon containers, ornamental, xeric and native plants, grasses, fruit trees and roses	(800) 922-8210 (909) 654-8210	(909) 487-9633	
Bitterroot Restoration	3780 Via De La Valle, Sta 117E	Del Mar	CA	92-546		(858)481-5965		www.bitterrootrestoration.com
Bitterroot Restoration	11780 Atwood Road, Ste 5	Auburn	CA	95603-		(530)745-9814		www.revegetation.com
Canyon Creek Nursery	3527 Dry Creek Road	Oroville	CA	95965-	Mail order, mostly perennials	(503) 533-2185		http://www.canyoncreeknursery.com
Clyde Robin Seed Co	P.O. Box 2366	Castro Valley	CA	94546		(415)785-3425		
Greenlee Nursery	257 E. Franklin Avenue	Pomona	CA	91766-	Wide selection of ornamental grasses.	(909) 629-9045		
J.L. Hudson, Seedsman	P.O Box 1058	Redwood City	CA	94064				

2003 Western Native Plant and Seed Suppliers - Listed Alphabetically by State

Complied by Virginia Hooper with the help of Roger Kjelgren, Wendy Mee, and the Utah Native Plant Society

Western Native Plant and Seed Suppliers - 2003

Company	Physical Address	City	State	Zipcode	Notes	Phone	Fax	Website
Las Pilitas Nursery - Escondido	8331 Nelson Way	Escondido	CA	92026-	Mail order, tons of neat western native plants and information	(760) 749-5930		http://www.laspilitas.com
Las Pilitas Nursery - Santa Margarita	3232 Las Pilitas Road	Santa Margarita	CA	93453-	Mail order, tons of neat western native plants and information	(805) 438-5992		http://www.laspilitas.com
Moon Mountain	P.O.Box 34	Morrow Bay	CA	93422				
Monrovia Nursery		Monrovia	CA		EVERYTHING	(800) 752-6848		http://www.monrovia.com
Northwest Native Seed	17595 Vierra Canyon Rd. #172	Prunedale	CA	93907-	Mail order seeds, a very large selection. "Large selection of western United States native species."	(831) 663-6031		
S&S Seeds	P.O. Box 1275	Carpinteria	CA	93014-1275	Seeds Wholesale	(805) 684-0436	(805) 684-2798	
S+S Seeds	5690 Casitas Pass Rd.	Carpinteria	CA	93014-		(805) 684-0436	(805) 684-2798	www.sseeds.com
San Marcos Growers	PO Box 6827	Santa Barbara	CA	93160-	California natives and adapted exotics	(805) 683-1561		http://www.smgrowers.com
T. Payne Fdn. for Wildflowers and Native Plants	10459 Tuxford St.	Sun Valley	CA	91352-	Mail order California native seed. Native plants available in nursery. Discount to landscape trade.	(818) 768-1802		
Theodore Payne Foundation	10459 Tuxford St	Sun Valley	CA	91352-		(818) 768-1802	(818) 768-5215	www.theodorepayne.org
Tree of Life Nursery	33201 Ortega Highway	San Juan Capistrano	CA	92693-	An extensive selection of California native plants. Friday retail hours year-round with occasional Saturday retail hours.	(949) 728-0685	(949) 728-0509	http://www.treeoflifenursery.com
Alpiners Seeds	PO Box 489	Klowa	CO	80117-	Mail order, lots of seeds	(303) 621-2580		
Apple Wood Seed Co.	5380 Vivian St	Arvada	CO	80002		(303)		
Anderson Seed Co.	1020 8th Street P.O. Box 2252	Greely	CO	80632		(800) 456-0169		
Arapahoe Acres Nursery	9010 Santa Fe	Denver	CO	80125-	garden center, wide selection including natives	(303) 791-1880		http://www.arapahoeacres.com
Arkansas Valley Seed	P.O. Box 270	Rocky Ford	CO	81067-	Seed Grasses, forage and reclamation.			
Arkansas Valley Seed Solutions	4625 Colorado Blvd	Denver	CO	80216-	We sell reclamation and native seed.	(303) 320-7500	(303) 320-7518	www.seedsolutions.com
Chelsea Nursery	3347 G Rd	Clifton	CO	81520-8143	Lots of natives. "We specialize in xeric and native plants."	(970) 434-8424	(970) 523-0737	
Country Lane Wholesale Nursery	2979 N. Hwy 83	Franktown	CO	80116-	Plants, Wholesale.	(800) 375-8696		
Harlequin's Gardens	4795 N 28th Street	Boulder	CO	80301-	A neat micro-nursery with lots of native plants	(303) 939-9403		
Laporte Avenue Nursery	1950 Laporte Avenue	Fort Collins	CO	80521-	Mail order, lots of native plants	(970) 472-0017		
Little Valley Wholesale Nursery	13022 East 136th Avenue	Brighton	CO	80601-	Wholesale, large selection	(303) 659-6708		http://www.hwn.com
Pleasant Avenue Nursery, Inc.	506 S. Pleasant Ave	Buena Vista	CO	81211-	We propagate and grow 95% of all of our stock at our 8000' elevation Nursery site, in Central Colorado Wholesale and retail.	(719) 395-8955		
Rocky Mountain Native Plants Inc.		Rifle	CO					
Rocky Mountain Rare Plants	1706 Deerpath Road	Franktown	CO	80116-9462	Specalize in seed from the mountain and high plains.Mail order, very large selection		(775) 201-2911	www.RMRP.com
Sunscapes	330 Carlile Avenue	Pueblo	CO	81004-	Native perennials, plants for rockeries & dryland gardens. Retail	(719) 546-0047		
Sunscapes	2 Meadow Valley Blvd	Pueblo	CO	81004-	Retail sales at the nursery by appointment only. Specializes in native perennials, plants for rockies and dryland gardens	(719) 546-0047	(719) 546-0047	www.sunscapes.net
Timberline Gardens	1170 W. 58th Avenue	Arvada	CO	80002-1223	Garden center, lots of everything	(303) 420-4060	(303) 420-4073	http://www.timberlinegardens.com

Western Native Plant and Seed Suppliers - 2003

Company	Address	City	State	Zipcode	Notes	Phone	Fax	Website
Western Native Seed	25 Pine Edge Drive	Coaldale	CO	81222-	Only supply seed	(719) 942-3935	(719) 942-3605	westernnativeseed.com
Clearwater Nursery, LLC	110 Honeysuckle St.	Bellevue	ID	83313	Cold Hardy plant material for the Intermountain west	(208) 788-5774	(208) 788-5729	clpfc@sunvalley.net
Hash Tree Company	1199 Bear Creek Rd	Princeton	ID	83857	Wholesale conifer nursery	(208) 875-1000	(208) 875-0731	
High Altitude Gardens	4150 S Black Oak Dr	Hailey	ID	83333-	18 years-old, specializing in plants for high, cold places. 100 wildflowers, 25 wild grasses	(208) 788-4363	(208) 788-3452	www.seedsave.org
Idaho Native Nursery	1906 Raintree Drive	Boise	ID	83712		(208) 338-5400		
Prairie Moon Nursery	Route 3 Box 1633	Winona	MN	55987-	Mail order, Great Plains plants and seeds. Over 400 species native to North American wetlands, prairie, savanna, woodlands	(507) 452-1362	(507) 454-5238	http://www.prairiemoonnursery.com
Bitterroot Native Growers	P. O. Box 566	Hamilton	MT	59840-	Native plant and seed Restoration	(406) 961-4991		
Bitterroot Restoration, Inc	445 Guest Lane	Corvallis	MT	59828-	All source identified stock Wetland plants Pre-vegetated coconut fiber mats for bank stabilization	(406) 961-4991	(406) 961-4626	www.bitterrootrestoration.com
Lawyer Nursery Inc.	950 Highway 200 West	Plains	MT	59859-	Bare root plants and seeds.	(800) 551-9875	(406) 826-5700	
Lawyer Nursery Inc.	950 Hwy 200 W	Plains	MT	59859-	Field grown seed propagated woody plants sold and shipped bareroot from our three nurseries in Plains, MI, Olympia, WA, and Cornell, WA. Seeds of woody plants. Shipping available worldwide	(800) 551-9875	(406) 826-5700	www.lawyernursery.com
Nature's Enhancement, Inc	2980 Eastside Highway	Stevensville	MT	59870-	Full landscape and restoration services	(406) 777-3560	(406) 777-3560	
Bluebird Nursery	P.O. Box 460	Clarkson	NE	68629-	Wholesale only Plants. Wide selection from plugs to 1 gallon size. Wide range of perennials	(800) 356-9164	(402) 892-3738	http://www.bluebirdnursery.com
Todd Valley Farms	East Highway 92	Mead	NE	68041-	Exclusive licensee holder for the production of Legacy turf-type Buffalograss. Contract growers located around the country	(402) 624-8385	(402) 624-2003	http://www.toddvalleyfarms.com
Agua Fria Nursery	1409 Agua Fria Rd	Santa Fe	NM	87505-	Garden center lots and lots of Penstemons, and other natives "We are Penstemon fanatics, with well over 100 selections every year. We specialize in native plants with an emphasis on the Intermountain West."	(505) 983-4631	(505) 983-3623	http://www.aguafrianursery.com
Bernardo Beach Native Plant Nursery	3729 Arno Street	Albequerque	NM	87107-2201	Garden center, lots and lots of Southwest natives and adapted exotics, especially upper Chihuahuan Desert. "Most of our plants are best adapted between 4,000 & 7,000 ft in elevation northern Chihuahuan species are our specialty."	(505) 345-8248		
Curtis & Curtis	Star Route Box 8A	Clovis	NM	88130-	Grass seed			
Go Native	P.O. Box 3631	Las Cruces	NM	88003-	Natives, perennials, ground covers, herbs.	(800) 880-4698	(505) 522-5080	http://gonative.com/
Go Native	1659 "A" Mountain Rd	Las Cruces	NM	88011-	Native and xeriphytic plants for the southwest	(800) 880-4698	(505) 522-5080	www.gonative.com
High Country Gardens	2902 Rufina Street	Santa Fe	NM	87505-2929	"Over 300 varieties of potted plants including xeriscape perennials, cacti and succulents, roses, herbs, and hummingbird and butterfly plants. Many plants are developed here in Santa Fe or are very hard to find." A division of Santa Fe Greenhouses, Inc.	(800) 925-9387	(800) 925-0097	http://www.highcountrygardens.com
High Country Gardens	2902 Rufina St	97507	NM	97507-	Santa Fe Greenhouses, Inc is the retail outlet for the company	(800) 925-9387	(800) 925-0097	highcountrygardens.com
Mesa Garden Plant & Seed List	PO Box 72	Belen	NM	87002-	Mail order, plants and seeds, lots of cactus and succulents	(505) 864-3131	(505) 864-3134	http://www.mesagarden.com
Nature's Way Wholesale Nursery	8905 Edith NE	Albuquerque	NM	87113-	Wholesale Plants, wildflowers. Grass seed	(505) 898-9258		
New Mexico Cactus Research	PO Box 787	Belen	NM	87002-	High desert native and adapted cacti and succulents	(505) 864-4027		
Plants of the Southwest	3095 Agua Fria	Santa Fe	NM	87507-	Mail order, large selection of Southwest native seeds and plants. Orders are accepted by mail only. . purchases not permitted during visitations or tours.	(800) 788-7333	(505) 438-8800	http://www.plantsofthesouthwest.com
Santa Ana Garden Center	Highway 44 & Jemez Dam Road	Bernalillo	NM	87004-	An enterprise of the Santa Ana pueblo	(505) 867-1322		http://www.santaana.org/garden.htm
Santa Ana Garden Center	157 Jemez Dam Rd	Bernalillo	NM	87004-	Locally grown plants for high desert environment	(505) 867-1322	(505) 867-3395	www.santaana.org
Santa Fe Greenhouses	2902 Rufina Street	Santa Fe	NM	87505-	Mail order, a very large selection of native plants	(800) 925-9387		http://santafegreenhouses.com/

Western Native Plant and Seed Suppliers - 2003

Company	Physical Address	City	State	Zipcode	Notes	Phone	Fax	Website
Santa Fe Greenhouses, Inc.	2904 Rubina St	Santa Fe	NM	87507-	High Country Gardens is the mail-order/catalog outlet	(877) 811-2700	(505) 473-2751	santafegreenhouses.com
Sierra Vista Growers	2800 NM Highway 28	La Union	NM	88021-	Southwest native and adapted plants, largest nursery in the El Paso - Las Cruces area	(505) 874-2415	(505) 589-3904	
Trees of Corrales	7752 Corrales Rd	Corrales	NM	87048-9023		(505) 898-2327		
Trees That Please - Toms Nursery	3084 Highway 47	Los Lunas	NM	87031-	Southwest native and adapted plants, especially native oaks	(505) 866-5027		http://toms.hypermart.net/sothorn1.htm
Comstock Seed	917 Hwy 88	Gardnerville	NV	89410-	Seeds. Native grasses/plants Gen'l Office & Acctg (775) 265-0090, and Fax (775) 265-0040	(775) 746-3681 (775) 265-0090	(775) 746-1701 (775) 265-0040	
Northern Nevada Native Plant Society	P.O. Box 8965	Reno	NV	89507	Mail order seed service			
Johnston Seed Company	319 West Chestnut	Enid	OH	73701-	Full line seed company specializing in native grasses, wildflowers, and cold-tolerant bermudagrasses	(800) 375-4613	(580) 249-5324	www.johnstonseed.com
Johnston Seed Co.	P.O. Box 1392	Enid	OK	73702- 737	Seed. Retail, wholesale, mail order	(800) 375-4613	(580) 249-5324	http://www.johnstonseed.com
Forest Farm	990 Tetterow Road	Williams	OR	97544-	Mail order, just about everything	(541) 846-7269		http://www.forestfarm.com
Greer Gardens	1280 Goodpasture Island Road	Eugene	OR	97401-	Mail order, wide selection	(800) 548-0111		http://www.greergardens.com/
Russell Graham	4030 Eagle Crest Road, N.W.	Salem	OR	97304				
Siskiyou Rare Plant Nursery	2825 Cummings Rd.	Medford	OR	97501-	Alpine and rock garden plants			
Seeds of the Plains	HC76, Box 21	Belvidere	SD	57521-	Northern Great Plains native seed for rock & wild gardens. Seeds. Wholesale, retail and catalog.	(605) 344-2265		
Greenwood Nursery	P.O. Box 806	McMinnville	TN	37111-	Plants, bare-root and seedling in tubes. Plants available through State Land Department program.	(931) 668-3041	(931) 668-2223	
Texas-Star Gardens	P.O. Box 663	Abilene	TX	79604				
Wildseed Farms	425 Wildflower Hills, P.O.Box 3000	Fredericksburg	TX	78624				
Yucca Do Nursery, Inc.	PO Box 907	Hempstead	TX	77445-	Some Southwest native and adapted plants, including succulents	(979) 826-4580	(979) 826-4571	http://www.yuccado.com/
Blue Sky Perennials			UT		Ornamental Grasses, Day Lilies, Utah native plants	Susan Kohler (801) 467-5780	Kathy Nicholich (808) 256-9720	
Canyon Nursery	HC 64 Box 2106	Moab	UT	84523-9502	Landscape contractor, native shrubs and trees	(435) 259-8274		
Fougler Seed Co	6999 S. 400 W.	Midvale	UT	84047		(801) 255-1131		
Garden Niche, The	10650 South 700 East	Sandy	UT		Retail perennials, trees and shrubs, grasses, cacti	(801) 523-5020		
Glover Nursery	9275 South 1300 West	West Jordan	UT	84088	Retail trees, shrubs and perennials	(801) 562-5486		
Gobel and Son Warehouse	P.O. Box 203	Gunnison	UT	84634		(435) 528-7535		
Granite Seed	1697 West 2100 North	Lehi	UT	84043-9551	Seed. Wildflower, grass and reclamation seed. Please note we are only wholesale. Thank you!	(801) 768-4422	(801) 768-3967	http://www.graniteseed.com
Great Basin Native Plants	75 West 300 South	Holden	UT	84636-	Plants and mail order.	(435) 795-2309		
Greenhouse Inc., The	285 W. 300 S.	Logan	UT	84321		(435) 752-7923		

Western Native Plant and Seed Suppliers - 2003

Company	Physical Address	City	State	Zipcode	Notes	Phone	Fax	Website
Growing Empire	820 East Empire Ave, 3530 South	Salt Lake City	UT	84106	1 gal perennials, select trees and shrubs	(801) 685-7099		
High Desert Gardens	2971 South Highway 191	Moab	UT	84532-	High desert Southwest native plants and adapted exotics. "Whole nursery is geared toward low water use. If plant needs more water its usually a riparian native. Many books sold for low water gardening and plant information."	(435) 259-4531	(435) 259-4531	
Intermountain Cactus	1478 Ewe Turn (750 East)	Kaysville	UT	84037-1256	We sell cactus, yuccas and agaves all winter. Hardy. We sell throughout the USA and Canada	(801) 546-2006		
Intermountain Plantings	1192 E. Draper Pkwy #474	Draper	UT	84020	Retail Nursery Outlet, some natives	(801) 990-1668		
Intermountain Seed	P.O. Box 62	Ephraim	UT	84627		(435) 283-4383		
Lake Mountain Farms	9980 South State	Sandy	UT	84070	Turfgrass and wildflower sod, buffalo grass	(801) 562-9080		
Lone Peak Conservation Nursery	271 West Bitterbrush Lane	Draper	UT	84020	Bare root and Tubling stock Conservation species. Wholesale Only. Minimum order of 100 plants	(801) 571-0900		www.nr.state.ut.us/slf/lonepeak/Home2.htm
Maple Leaf Industries	450 S. 50 E.	Ephraim	UT	84627		(435) 283-4701		
Mountain Valley Seeds	1800 South West Temple #600	Salt Lake City	UT	84115	Utah Wildflowers, bulk, packaged and displays	(801) 486-0480		genwrites@mvseeds.com
Paul Ames	P.O. Box 355	Eureka	UT	84628		(435) 433-6924		
Progressive Plants	9180 S. Wasatch Blvd.	Sandy	UT	84093-	Wholesale container plants	(801) 942-7333		progressive@utah-inter.net
Red Barn Trees	2060 Rassmussen Rd	Park City	UT	84060	Large trees and landscaping	(435) 649-8434	(435) 649-5856	
Steve Reagen Company	4215 S. 500 W.	Murray	UT	84115		(801) 268-4596		
Stevenson Intermountain Seed	P.O. Box 2	Ephraim	UT	84627		(435) 283-6839		
Sun Mountain Growers	2033 Jenny Lane	Clearfield	UT	84015	native seedlings, wholesale only, contract growing service	(801) 941-5535		
Tri-City Nursery	P.O. Box 30	Kaysville	UT	84037	wholesale trees and shrubs	(801) 301-4420		
Utah Native Plant Society	Attn: Seed Committee Chairperson P.O. Box 520041	Salt Lake City	UT	84152-0041	Seeds and seedlings	(801) 423-2603		www.unps.org
Utah Native Wildflowers Virginia Markham	3850 W. 2150 S.	Salt Lake City	UT	84120	Seed packets	(801) 277-8423		
Wasatch Dale Farms	12900 West 12126 South	Elberta	UT	84626	Native grass and seed	(801) 887-3203		
Wheatland West Seed Llc.	P.O. Box 513 1780 No. Hwy 38	Brigham City	UT	84302	Full service forage, turf and reclamation seed supplier	(435) 734-2371 (801) 583-0866	(435) 723-1903	
Wildland Nursery	550 North Highway 89	Joseph	UT	84739-	Southwest natives	(435) 527-1234	(435) 527-1234	http://www.wildandnursery.com
Willard Bay Gardens	7905 S. Hwy 89	Willard	UT	84340	several perennials and forbs in containers	(435)723-1834		www.willardbaygardens.com
Zollinger Fruit and Tree Farm	1000 River Heights Blvd.	River Heights	UT		Trees only	(435) 752-7810		
3 B's Nursery and Greenhouse	440 N. 100 W.	Hyde Park	UT			(435) 563-5414		
Lamb Nurseries	East 101 Sharp Ave	Spokane	WA	99202				
Mt. Tahoma Nursery	28111 112th Avenue	Graham	WA	98338-	Mail order, emphasis on alpine plants. Primarily alpine and low rainfall area plants	(253) 847-9827		http://www.backyardgardener.com/mttahoma
Rain Shadow Nursery	Rt. 2 Carrion Road	Ellensburg	WA	98926		(509)968-4778		
Prairie Nursery	PO Box 306	Westfield	WI	53964-	Mail order. Great Plains plants and seeds	(608) 296-3679		http://www.prairienursery.com
Wind River Seed	3075 Lane 51 1/2	Manderson	WY	82432-	Native grass, forb and shrub seed for range and reclamation	(307) 568-3361 (307) 568-3325	(307) 568-3364	http://www.windriverseed.com