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ATTITUDES AND ROLES OF WOMEN AND MINORITIES IN
COMMUNITY AND URBAN FORESTRY PROFESSIONS

by

Hope A. Bragg

A thesis submitted in partial fulfillment
of the requirements for the degree

of

MASTER OF SCIENCE

in

Forest Resources

UTAH STATE UNIVERSITY
Logan, Utah
1998

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ABSTRACT

Attitudes and Roles of Women and Minorities in
Community and Urban Forestry Professions

by

Hope A. Bragg, Master of Science

Utah State University, 1998

Major Professor: Dr. Michael Kuhns
Department: Forest Resources

Community and urban forestry is a multifaceted field ranging from tree planting to removal, hazard assessment, and public relations. However, the racial and gender diversity of the community forestry workforce is remarkably low. To gain a better understanding of this lack of diversity, I surveyed professionals in two major community/urban forestry organizations. Age, income, and years in the profession were considered, along with education level, to determine if there is some underlying reason for low representation of women and minorities in the community/urban forestry field. I found that while white males dominated all work sectors (especially private organizations), women were concentrated in public or non-profit organizations holding positions in offices, education, or other jobs with extensive public interaction. Minorities held similar positions to women or were in entry level jobs and general tree care rather than in more professionally advanced positions. Attitudes

regarding most aspects of the profession varied little based on sex or minority status, with only minor differences on advancement potential and salary.

(73 pages)

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Hope A. Bragg

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CHAPTER I

INTRODUCTION

With rising awareness of the natural environment, more people recognize the importance of trees in their lives. As the United States becomes more urbanized, community/urban forestry (i.e., the practice of tree and related resource management in urban or residential areas) becomes increasingly common. Growing interest in community/urban forestry and burgeoning demands for tree care have prompted the expansion of this profession into park management, arboriculture, and personnel management. In doing so, the profession includes people with skills ranging from heavy equipment operation to pruning and program management to disease diagnosis, among others. This broadly talented group of community/urban forestry professionals also deals with a wide clientele, so a culturally diverse work force should help bridge barriers to the communities they serve (Anderson et al. 1996).

But this is rarely the case in natural resource professions. For example, the Society of American Foresters' membership consists primarily (~ 90%) of white males (Anderson et al. 1996) while a recent examination of diversity in the United States Department of Agriculture (USDA) found that 66% of their employees were white males (Civil Rights Action Team 1997). Discrimination has also been reported by USDA employees with some minorities suggesting that "glass ceilings" or "sticky floors" [barriers preventing qualified individuals from advancing (Fisher et al. 1993)] keep them from advancing professionally in various USDA agencies. Acts of racial/ethnic discrimination and sexual harassment were reported in all USDA divisions, including the Forest Service (USFS) (Civil Rights Action Team 1997). The lack of cultural and sexual diversity extends into both public and private

community/urban forestry professions. In 1993 the National Urban and Community Forest Advisory Council (NUCFAC) indicated a need to "recruit to create diversity in the urban forestry profession" (NUCFAC 1993, p. 15), suggesting a perception of female and minority underrepresentation.

The goal of this study was to examine the roles and attitudes of women and minorities in community and urban forestry. Objectives were to:

1. Determine if women and minorities are concentrated in various employment sectors.
2. Determine if women and minorities are concentrated in certain jobs.
3. Determine if there is discrimination (or perceived discrimination) occurring against women and minorities.
4. Determine what factors might contribute to underrepresentation of or discrimination against women or minority professionals (e.g., work ethic, professional satisfaction, intrinsic value of work, income satisfaction).

Results from this study should help community/urban forestry organizations make their profession more appealing and meaningful to underrepresented groups, thereby increasing their participation.

CHAPTER II

LITERATURE REVIEW

The literature on women and minorities involved in natural resource professions is uncommon (especially when considering only community and urban forestry). Typically, research on community/urban forestry focuses on trees and tree diseases, not the people working in the industry. Some studies have examined public education or attitudes, but few have considered the professionals who work in these fields. Therefore, this literature review includes research on traditional forestry and recreation professionals as well as other studies on natural resource education and mentoring programs and job availability, women and minorities in other professions, workplace and professional discrimination, and attitudes of other professionals related to job satisfaction and occupation selection in order to understand similarities that may exist in community/urban forestry.

Education and Mentoring in Career Development

Studies regarding college recruitment of minority students have been presented at several professional meetings (Tarnapol 1986, Hom 1992, Meridith 1992, Phills 1992, Pytel 1992, Wiley 1992). At the 5th National Urban Forestry Conference, the perspectives of Native American, Hispanics and overall cultural diversity were presented in the context of modern community and urban forestry (Berry 1992, Greene 1992, Rodriguez-Parris 1992, Sando 1992). These conferences heightened awareness of low cultural diversity in education and the workplace for traditional forestry and community forestry. They also recommended

better integration of multiple cultures into the workplace, along with the inclusion of minorities at higher professional levels through improved education or professional recruitment.

The scarcity of women and minorities currently in forestry may contribute to low numbers in the future because of the lack of mentoring for new recruits or students (Kennedy and Mohai 1987). Several studies report the integral role mentoring plays in the career selection of most USFS employees, including women (Kennedy and Mincolla 1986, Kennedy and Roper 1990, Carroll et al. 1996).

Another possible cause for underrepresentation of women and minorities in arboriculture is inadequate school career counseling (Felix 1986). A study of African American students found that they knew little about natural resource professions and their knowledge came from television rather than personal encounters with nature or current natural resource professionals (Washington and Rodney 1986). Leatherberry and Wellman (1988) found that minority students relied on the guidance counselors for assistance in selecting a career path, and that 91% of minority students knew little to nothing about forestry careers. Wellman (1987*a,b*) surveyed seniors in 18 eastern United States high schools to determine why students selected professions. He found that exposure to forestry careers was negatively affected by computer career guidance programs because the programs are biased against forestry because students who wanted to work with the public, who thought income was important, or who were strong in math were guided away from forestry as a profession. These programs considered forestry a labor intensive and solitary career -- an inaccurate description of many of today's forestry careers.

Employees may also lose interest in community/urban forestry work from inadequate on-the-job training. Mendoza (1995) found that Hispanics working in the seasonal tree care industry in the Chicago area were often underpaid, had a 6th grade or lower education, and spoke little or no English. Many workers had low self-esteem but with proper training and education (preferably in Spanish) the quality of their work improved, as did their dedication to the profession (Mendoza 1992). Taylor (1993) studied self-esteem factors related to urban forestry for inner city youth by involving at-risk teenagers from low-income communities in small urban forestry projects to help teach work ethic, reduce fear of forests (some students feared forests more than guns), and instill community pride. This project exposed the benefits of urban forestry work on self-esteem, and increased the interest of minorities in urban forestry. Robbins (1994) also found that involving youth in community/urban forestry meetings and volunteer activities made the profession more appealing to minorities and young women.

First-year college students' perceptions of the natural resources department at Ohio State University (OSU) were examined by Wright and Floyd (1990). A major is not declared until the second year of study at OSU so first-year students can explore their options before committing to a major. When selecting their field of study, starting salary was the most important factor for female students (76% ranked it most important) while males rated income as least important (only 32% felt it was somewhat important). Males tended to follow role models or mentors when selecting a major (68% chose mentors), whereas females were less apt to rely on mentoring (12%). Wellman (1987*a,b*) also showed that, similar to female students at OSU, minorities choose professions based on peers or income.

Involvement in Professional Organizations and Agencies

The Society of American Foresters (SAF) represents professional foresters in the United States. Because this organization's membership is white male dominated (98% of the membership is Caucasian, and 90% of that is male) (Anderson et al. 1996, SAF 1995), SAF established a committee on women and minorities in 1977 to address concerns of underrepresented groups, which led to a symposium on the roles of women in SAF (Yonts-Shepard 1986). Strategies were formulated to heighten awareness of women and minorities in forestry through local workshops, mentoring networks, and peer recognition.

In 1991, SAF began MINFORS (Minority Participation in Forestry and Related Renewable Natural Resources) conferences to establish mentoring opportunities and educational networks for underrepresented groups of natural resource professionals and students (Otero and Brown 1996). SAF has also tried to increase their cultural diversity by analyzing the role of diversity in Societal leadership positions. In recent meetings, SAF has recognized that the numbers of women and minorities within their ranks have actually dropped, which concerns the current leadership, since they fear SAF is perceived as an "Anglo-male" society and not a professional organization (Anderson et al. 1996). The Society stated eight reasons for increasing diversity, including: bringing together different viewpoints, cultures, and values to create a professional society that can relate to American society (Otero and Brown 1996).

In the late 1970's, studies of women in traditional professional land management roles became more frequent. It was during this time that *Women in Forestry* (later *Women in*

Natural Resources), published by the University of Idaho, came into print. Both scientific literature and professional commentary are provided by this journal, allowing publication of information pertinent to underrepresented professionals (Ehrenreich 1996). Through this journal's attempts to appeal to women, information about other organizations (e.g., Washington Women in Timber) became more accessible (Burns 1996); however, the author also feels that there is a need for more professional women's organizations in forestry and natural resources.

Discrimination in Natural Resource Professions

Research on discrimination has only recently focused on minorities in some "green" industries (forestry, horticulture, and natural resources) in the United States. In the 1970's articles and letters began to appear in the *Journal of Forestry* (SAF's general membership journal) describing the shortage of minority foresters (specifically African-American), resulting, perhaps, from educational shortfalls or institutional racism. Payne and Theoe (1971) postulated there may be some institutional racism (racism that keeps people from being hired) and that minorities may be reluctant to enter "agrarian professions" due to a perceived connection to slavery. Subsequent reactions to their article, as expressed in letters to the editor, ranged from "...dismayed and surprised to see such valuable space used for the printing of 'Black Foresters Needed'..." (Horan 1971, p. 393) to "I get more than a little sick of our contemporary pseudo-sociological bleeding hearts who have all the answers; it is only the questions that bother them" (Logan 1971, p. 438). Attitudes appear to have changed, however. When the *Journal of Forestry* recently devoted an entire issue (November 1996)

to minority and cultural diversity issues, the only response was a single letter to the editor making a simple factual correction (Zivnuska 1997).

In a recent survey Teeter et al. (1990) reported 65% of women foresters in the southeastern United States experienced discrimination. They found that while women have increased access to the USFS, once employed they may not have the same career opportunities as their male counterparts. White males had more opportunities for advancement than women, regardless of education level (Teeter et al. 1990). This research also revealed clustering of women in public sector positions acknowledged discrimination occurring in the workplace, regardless of work sector. Cripe (1991) studied women's roles as natural resource professionals in the National Park Service (NPS). Though discrimination was not directly examined, he found that women made less money than men and were concentrated (over 50%) in secretarial and support staff positions rather than in law enforcement or resource management roles, resulting in an income disparity between women and men. Women in professional positions were also paid less than males because, on average, they had less time on the job (42% of these women had been in the NPS for less than 10 years).

The book *Safeguarding the Land* (Skurzynski 1981) contains the biographies of three women with natural resource professions, the USFS, NPS, and Bureau of Land Management (BLM) during the 1970's. Issues from bunkhouse etiquette to fire jumping provided insight into how established careers within natural resources are classified as "men's" professions, and how acts of discrimination can occur without intent. The women in these biographies were told repeatedly they were working in a profession too labor intensive for women and

that they should be elsewhere (Skurzynski 1981). The gender-exclusive titles that the women in Skurzynski's book held have also been documented by Carroll et al. (1996), who noted the USFS had similar "gender-exclusive" job descriptions.

Job Availability in Natural Resources

Chesney (1981) studied natural resource professionals and students to determine whether minorities should enter this profession and found that minorities held 6-10% of management positions in the USFS while only 10 of 5,000 (0.2%) forestry positions in Pennsylvania were held by African-Americans. The author also mentioned many possible barriers against integrating natural resource professions, including the resistance to change by natural resource professionals; negative agriculture and forestry experiences; urban orientation of minority groups; financial needs; racial discrimination; lack of awareness and exposure to natural resources careers; past job availability with too many foresters for available jobs; educational system -- bias from teachers, counselors, and administrators; home culture and environment; poor academic preparation; few role models; and a lack of interest by academic institutions, industry, state, and federal governments (Chesney 1981). The author contends that minorities are needed in natural resource policy and decision making, and that society must overcome these obstacles before integration can occur.

According to a study by Hildebrandt et al. (1991) on the status of American urban forestry education and employment, poor job availability [as noted by Chesney (1981)] is less of a problem in community and urban forestry. Hildebrandt et al. (1991) noted that only 943 urban forestry majors graduated between 1980 and 1990, with 76% of them finding work in

related careers. Hildebrandt et al. (1991) also felt the failure of colleges to teach multiple classes in urban forestry and a lack of career awareness may be responsible for the low numbers of graduates in urban forestry. Based on the quantity of job announcements received by the University of Wisconsin-Stevens Point, Miller (1994a) reported a greater demand for community/urban forestry jobs than the supply of qualified employees.

Professional Job-Related Attitudes

Duke (1991) found a sense of anxiety among white men as cultural diversity in their professions changed. After surveying many professions to see if there was any backlash against affirmative action and the increased presence of women and minorities, he found many white men were defensive and angry over the integration of their profession with females and minorities.

Few studies have been conducted regarding minority attitudes on their respective professions, and none have been done in community/urban forestry. A study of minorities in banking in New York City assessed feelings about leave time, training, job satisfaction, and other factors of employee morale (Corwin 1971). Minorities were generally satisfied with their choice of professions and no evidence of active discrimination was found but attitudinal differences existed between minorities and non-minorities on income, work ethic, and specific jobs performed. Similarly, Miller (1994b) explored the attitudes of minority accountants towards their profession. This study suggested the importance of increasing minority participation at various professional levels, yet did not elaborate on methods or reasons behind current underrepresentation. While many recommend the hiring of more professional

minorities (Fry 1992, McMahon and Allen-Meares 1992, Brintnall 1992, Miller 1994*b*), little research exists on why there are so few minorities initially hired. These studies cite "glass ceilings" that women and minorities struggle against, yet they have not addressed worker's attitudes regarding this "glass ceiling."

Research on women and minorities in community/urban forestry is extremely sparse, but from the attitudes of professionals in similar fields (e.g., traditional forestry), insight can be gained into today's community/urban forestry professionals. This study will examine the roles and attitudes of women and minorities in community/urban forestry in the context of past research in natural resources to determine if the trends shown in these fields are similar, and if so, what can be done to address the shortcomings in order to make the profession more appealing to all people.

CHAPTER III

METHODS

The target population of this study consisted of community and urban forestry professionals in two national professional societies [International Society of Arboriculture (ISA) (N = 6,193); SAF's Urban Forestry Working Group (N = 1,351)] and two state-level positions [state urban forestry coordinators (usually with state forestry agencies); and state community forestry volunteer coordinators (primarily with state forestry agencies or non-governmental organizations) (total coordinator N = 82)]. All mailing lists were examined to eliminate duplication, resulting in a final population size of 7,370.

For the purpose of this study, "professional" means the respondent worked at least part time (≥ 20 hours per week) in community/urban forestry, belonged to a community/urban forestry (or related) professional organization, and works in a "professional position" (see Table 1 for examples). This is consistent with SAF's definition of a professional, which considers seven key principles: professional education, job experience, a code of ethics, pride, dedication, and integrity in the work conducted, and participating in a professional group or society (Gresham 1987). Since SAF's membership demographics indicated low representation of women and minorities (SAF 1995), it was decided to include the entire population of these groups in the survey to ensure sufficient numbers of women and minorities for a more detailed follow-up study.

Demographics of these populations were initially unknown, so a postcard survey was sent in 1995 to the entire group (Appendix 1a and 1b) to determine minority status,

employment status, current job in the profession, sex, and work sector. The postcard survey was conducted with one initial and one repeat mailing, consistent with the Dillman total design method (Dillman 1978), and achieved a 57% response rate. Due to financial constraints, further postcard mailings were not feasible. The postcard yielded 3,722 respondents who were considered eligible for the detailed survey if they currently worked at least part-time (≥ 20 hours a week) in community/urban forestry. Due to the low frequency of women and minorities in the postcard survey, all those identified in the postcard survey were sent the in-depth survey, along with a sample of white males.

Table 1. Common community/urban forestry positions as defined by the postcard survey administered in 1996.

Job title	Description
Municipal forestry	Forestry within city governments, or municipal/urban settings.
State forestry	Primarily involves coordination and assistance to local forestry programs provided by a state agency or non-government organization.
Arboriculture	Deals with the care of individual trees.
Nursery	Involves the propagation and sale of trees and plants.
Park management	Deals mostly with public lands in recreational settings.
Research	Research on tree care, management, tree pathogens, etc.
Extension	University based education of the public on trees and tree care.
Teaching	Either college or high-school level education in forestry or arboriculture.
Landscape maintenance	Upkeep and care of landscapes (i.e. lawn-care).
Landscape architecture	Design of landscapes for residences and businesses.
Utility forestry	Primarily entails the clearance of utility corridors.

Respondents were classified into three employment sectors: the private for-profit sector (industry), private non-profit sector (charitable or service organizations), and public sector (federal, state, county, parish, and city agencies). My public sector definition differs from Teeter et al. (1990), who only designated federal positions as public (they considered other governmental levels as private sector). For this study, if a position (including state employees, public school educators, and municipal foresters) was funded and managed by public agencies, it was classified as a public sector position. Line clearance for private utility companies and tree care for private for-profit companies are examples of positions considered private sector, while volunteer groups such as Global Re-Leaf were considered private non-profit sector.

To ensure survey integrity, a pilot test for the detailed attitudinal survey was carefully administered because of the small number of women and minorities so it was reviewed by several survey methodology experts. After editing, the pilot test was administered to 25 white male community/urban foresters throughout the United States to determine if any of the questions or constructs (i.e., job versus profession) were ambiguous. As a result of the pilot test, some Likert-style scales were revised and definitions of profession and job were further clarified.

Beginning in late 1996, a revised detailed attitude survey (Appendix 2) was mailed to 794 professionals, including 100% of the women, minorities, and people reporting disabilities and 25% of white males identified from the postcard survey. People were considered minorities if they were black/African-American, Asian/Pacific Islander, Hispanic, Native American/Alaskan Native, or they indicated a legitimate "other" race on the postcard (e.g.,

multi-racial). For the survey analysis and categorization, sex and minority status were examined in three inclusive categories: white male, female, and minority. Minority women were placed in both the female and minority category for analysis. A reminder postcard (Appendix 3) was administered two weeks later and a second mailing of the survey followed the next week, ultimately providing 603 responses for a 76% response rate, [$\geq 60\%$ response rate for mail surveys is considered acceptable by social science researchers (Neuman 1994)].

The detailed survey consisted of attitude and motivation-related questions based on the University of Michigan's *Social Research Institute's Employment Satisfaction* study (Robinson et al. 1969). Job satisfaction, education, and motivation for entering the community/urban forestry profession were assessed with a 10-page survey. Many questions used a six-point Likert response format ranging from "strongly agree" to "strongly disagree" with no undecided or neutral category provided (Robinson et al. 1969), although a "don't know" option was allowed in the instructions. Five response categories ranging from "very important" to "not at all important" (with a "no opinion" category) were used for six questions involving job and professional motivations. Questions were posed in multiple ways, with some issues reverse-coded to avoid response set. If questions known to be related from past research were correlated at a statistically significant level ($\alpha = 0.05$), they were averaged together for analysis, creating a summated scale for analysis (Spector 1992). Open-ended questions were also asked regarding post-secondary education opportunities, personal educational experiences, jobs, and professions.

Issues of validity and reliability were addressed consistent with accepted social research methodology (Alwin 1991, Neuman 1994). Since this study is a survey of an entire

population of minorities and women, validity is addressed through the replication of past research (Robinson et al. 1969). Because only a sample of white males was examined and they held the highest nonresponse to questions and surveys, nonresponse may be an issue with this group. The women and minorities in this study consistently answered most of the questions and had high response rates to the detailed survey. To improve reliability, definitions of two vague constructs (job and profession) were provided for the survey respondents. The definitions were consistent with Webster's Tenth New Collegiate Dictionary (1993), with profession being a position requiring specialized knowledge and formal schooling, while a job was a person's specific duties. In addition, questions regarding professions and jobs were revised after the pilot test to reduce potential misunderstandings, while attitude items were asked in alternate forms to gain more reliable measures of key constructs.

While disabled persons were initially surveyed as a potential underrepresented population in community/urban forestry, they were dropped as a category after surveys were received because of questionable reporting of disabilities (e.g., some respondents indicated ailments such as myopia, sprained ankles, or head-colds as disabilities).

In this study I also attempted to examine discrimination at two levels, institutional and individual. Institutional discrimination was explored through Likert-style questions that ask how the respondents feel about the professional treatment of women, minorities, and white men. Individual discrimination was indicated by margin and end notes, and provided more insight into the respondents' personal experiences (Appendix 4).

CHAPTER IV

RESULTS

Postcard Survey

Of the 7,370 professionals who were sent the postcard survey in February 1996, 4,233 responded for a 57% response rate. Of those that replied, 3,722 (88%) considered themselves to be community/urban forestry professionals. The rate of eligible respondents by organization type were 42% for SAF, 53% for ISA, and 84% for state/volunteer coordinators. Of the initial population for this survey, 80% were from ISA, 15% were from SAF, and only 5% were state and volunteer coordinators. Most respondents were ISA members (Table 2), including 78% of the women, 84% of the white males, and 83% of the minorities. Women and minorities were underrepresented in the profession overall, comprising only 16% (combined) of the work force of community/urban forestry professionals (Table 3) though their proportions of the total U.S. work force population are 37% and 15%, respectively (Anderson et al. 1996).

Table 2. Sex and minority status of postcard survey respondents by organization type, including percentages (number of respondents) in an organization.

	White male	Female	Minority ^a
ISA	86% (2,720)	9% (295)	5% (161)
SAF	84% (472)	10% (58)	6% (31)
State/Volunteer Coordinators	57% (39)	40% (27)	3% (2)

^aIncludes both female and male minorities.

Table 3. Sex and minority status of postcard survey respondents, including the percentages (number of respondents in parentheses) of the population in each sex and minority status category.

	White	Hispanic	American Indian	Black	Asian	Other
Male	85% (3,128)	2% (72)	1% (42)	<1% (21)	<1% (19)	1% (32)
Female	10% (357)	<1% (8)	<1% (3)	<1% (1)	<1% (4)	<1% (1)

The most common primary employment noted by postcard survey respondents (regardless of sex or minority status) was arboriculture and municipal forestry followed by consulting for females and white males and landscape maintenance for minorities. Nursery, horticulture, landscape architecture, and extension were the least frequently cited types of employment (Table 4). White men dominated all work sectors in terms of numbers employed, while women and minorities were more heavily represented in the public and non-profit sectors (Table 5). Minorities and women were primarily in public relations positions (e.g., city foresters, state coordinators), while white males tended to be in arboriculture and utility forestry (private sector) positions (Table 4, Table 5).

In-Depth Attitude Survey

The in-depth survey was administered to 794 persons with 603 responses, of which 42 were ineligible due to retirement, changes in profession, or holding non-professional positions, yielding a 75% response rate (46% of the original population that responded). On average, in-depth survey female respondents were younger and less experienced in the profession than white males and minorities (Table 6). Additional analysis was conducted

Table 4. Primary employment, sex, and minority status of postcard survey respondents who also responded to the in-depth survey, including percentages (number of respondents in parentheses) by job type.^a

	White male		Female		Minority	
	Postcard (N=3516)	Detailed (n = 244)	Postcard (N=445)	Detailed (N = 255)	Postcard (N=190)	Detailed (N = 71)
Arboriculture	60% (2,097)	43% (104)	39% (174)	18% (46)	53% (101)	31% (22)
Municipal forestry	31% (1,084)	10% (25)	29% (129)	21% (53)	34% (70)	14% (10)
Consulting	(*)	9% (22)	(*)	10% (25)	(*)	7% (5)
Utility forestry	16% (569)	9% (21)	8% (35)	7% (18)	12% (22)	7% (5)
Landscape maintenance	35% (1,243)	8% (20)	28% (126)	7% (17)	36% (68)	11% (8)
State forestry	7% (237)	5% (11)	12% (52)	8% (21)	8% (15)	3% (2)
Research/education	20% (690)	4% (9)	30% (135)	6% (15)	23% (44)	7% (5)
Park management	11% (383)	3% (8)	9% (38)	4% (9)	14% (26)	6% (4)
Retired	(*)	3% (8)	(*)	0% (0)	(*)	3% (2)
Horticulture	(*)	2% (5)	(*)	7% (19)	(*)	1% (1)
Landscape architecture	11% (389)	2% (4)	16% (73)	5% (14)	18% (34)	8% (6)
Extension	5% (168)	1% (2)	9% (39)	4% (9)	5% (9)	0% (0)
Nursery	10% (364)	1% (3)	10% (46)	2% (4)	20% (38)	0% (0)
Other	23% (807)	1% (2)	29% (127)	2% (5)	19% (37)	1% (1)

^a Respondents could indicate multiple jobs on the postcard survey, and only one position on the detailed survey.

* Indicates items that were not asked on the postcard survey. These items fall into other categories.

controlling for work sector and level of advancement. The results of these calculations varied little from the general population means (mean scores \pm 0.01 - 0.10 from presented data) and thus were not reported.

Table 5. Sex and minority status of postcard survey respondents by work sector, including percentages (number of respondents in parentheses) within sex or minority status.

	White male	Female	Minority
Public	41% (1,464)	53% (226)	48% (102)
Private non-profit	4% (162)	13% (56)	5% (10)
Private for-profit	55% (1,977)	34% (147)	47% (100)
Total	100% (3,603)	100% (429)	100% (212)

Table 6. Mean age and years of experience for community/urban forestry professionals by sex and minority status (standard deviations in parentheses).

	White male n = 242	Female N = 253	Minority N = 75
Age	46.3 (10.7)	40.9 (7.3)	42.5 (11.0)
Years in Profession	18.5 (10.5)	11.2 (6.9)	15.7 (9.2)

Level of advancement. When position in community/urban forestry was examined, white males out numbered women and minorities at all employment levels based on the postcard survey. White males were more likely to be self-employed (42%) compared to only 31% of minorities and 23% of women. When level of advancement for non-self-employed

professionals was examined, white males and minorities were more likely to be in middle management positions, while females were represented proportionately higher in mid-level or middle management positions.

Educational experiences. Women tended to be more highly educated with most (85%) reporting at least a bachelor's degree (Table 7). Minorities and white males also reported high levels of education, with 59% of the white males and 62% of minorities earning bachelor's degrees (or higher). Whereas differences were found in the level of schooling by sex and minority status, there was little variation in college majors and minors (Tables 8 and 9). Most respondents reported degrees in natural or biological sciences (i.e., forestry, pathology, horticulture). Natural sciences was the most frequently mentioned minor, followed by liberal arts and business.

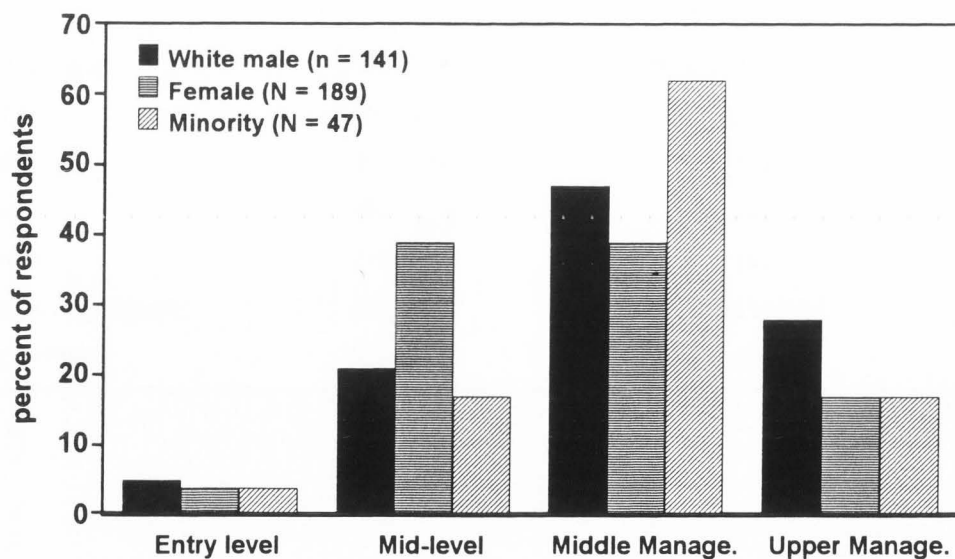


Figure 1. Level of advancement of community/urban forestry professionals by sex and minority status. Percentages indicate proportion of respondents in each sex or minority status category.

Table 7. Level of education by sex and minority status, including percentage (number of respondents in parentheses).

	White male n = 244	Female N = 255	Minority N = 71
Grade school	0% (0)	0% (0)	1% (1)
High school	11% (27)	4% (9)	6% (4)
Technical school	2% (4)	1% (2)	1% (1)
Some college	15% (37)	5% (12)	17% (12)
Associate's degree	12% (30)	6% (16)	13% (9)
Bachelor's degree	41% (101)	53% (134)	46% (33)
Master's degree	13% (32)	28% (72)	13% (9)
Doctorate/post-doctorate	5% (13)	4% (10)	3% (2)

Table 8. College majors of community/urban forestry professionals by sex and minority status, including percentages (number of respondents in parentheses).

	White male n = 192	Female N = 229	Minority N = 48
Natural sciences	72% (138)	76% (173)	75% (36)
Liberal arts	10% (20)	9% (21)	10% (5)
Engineering	2% (4)	1% (2)	2% (1)
Business	6% (12)	2% (4)	4% (2)
Education	2% (3)	3% (8)	0% (0)
Landscape architecture	5% (10)	9% (21)	8% (4)
Law/government	3% (5)	0% (0)	0% (0)

Table 9. Minor fields of study in college for community/urban forestry professionals by sex and minority status, including percentages (number of respondents in parentheses).

	White male n = 91	Female N = 135	Minority N = 35
Natural sciences	48% (44)	61% (82)	66% (23)
Liberal arts	20% (18)	26% (35)	17% (0)
Engineering	3% (3)	1% (2)	0% (0)
Business	11% (10)	4% (5)	14% (5)
Education	1% (1)	2% (3)	0% (0)
Landscape architecture	3% (3)	2% (3)	3% (1)
Law/government	13% (12)	4% (5)	0% (0)

Most respondents felt that their professional success was not hindered by their education level (Table 10), with over 80% indicating satisfaction with their education. Minorities felt less strongly (due to reverse coding, lower the averages imply stronger agreement) about this issue (mean 4.58) than the white males and female (means of 4.79 and 4.81, respectfully). While the respondents were generally satisfied with their education, some shortcomings were reported, including computer/GIS (the primary education deficiency reported by minorities), natural science skills (primary deficiency for white males and females), business, and communication (Table 11).

Professional satisfaction. Respondents to the in-depth survey also rated their attitudes and feelings about work ethic, professional and educational satisfaction, income and benefits, intrinsic values from the profession, and discrimination in the profession (see Appendix 2, questions 14 and 15). These feelings and attitudes are summarized in tables 12-17 by sex and minority status. Note that for composite questions (see Table 12, question a)

Table 10. Responses to the statement "My education is keeping me from succeeding in my profession" (in-depth question 15j) by sex and minority status. Percentages may not equal 100% due to rounding.

	Strongly Agree 1	Somewhat Agree 2	Agree 3	Disagree 4	Somewhat Disagree 5	Strongly Disagree 6	Mean ^a (SD)
White male	0	8 (3%)	17 (7%)	92 (38%)	23 (10%)	100 (42%)	4.79 ± 0.15 (1.15)
Female	3 (1%)	9 (4%)	15 (6%)	91 (36%)	23 (9%)	112 (44%)	4.81 (1.26)
Minority	1 (1%)	6 (8%)	9 (12%)	22 (29%)	9 (12%)	30 (39%)	4.58 (1.38)

^aWhite male data include mean, 95% confidence interval, and standard deviation (SD), while female and minority data include only mean and SD.

Table 11. Perceived college education deficiencies for community/urban forestry professionals by sex and minority status, including percentages (number of respondents in parentheses).

	White male n = 171	Female N = 205	Minority N = 51
Natural sciences	30% (51)	25% (51)	16% (8)
Business	25% (43)	17% (34)	20% (10)
GIS/computers	17% (29)	17% (35)	27% (14)
Communication	12% (21)	12% (25)	16% (8)
Technical training	11% (18)	18% (36)	12% (6)
Law/government	2% (4)	7% (14)	6% (3)
Liberal arts	2% (3)	4% (9)	4% (2)
Landscape architecture	1% (2)	1% (1)	0% (0)

respondents' answers to two or more questions have been averaged and re-categorized based on past research suggesting correlations in the questions (Robinson et al. 1969) and correlations that existed in the questions from the detailed survey results.

Question 14b, c, d, and e of the in-depth survey asked respondents to rate the importance of various professional factors, including a feeling of accomplishment and opportunities for advancement and rewards (Table 12). Over 96% of the professionals surveyed indicated that a feeling of accomplishment was important or very important to them (Likert-type scale means 4.67 for white males, 4.76 for females, and 4.69 for minorities, where 5 = very important). Opportunities for promotion or raises were not as important for most respondents (53 to 56% rated important or very important; means 3.30 to 3.54).

Table 13 included questions on perceptions of discrimination in community/urban forestry (Appendix 2, questions 15g, l, p, s, v, y, aa, gg, hh). Females and minorities mentioned some feeling that they were not treated with respect in the profession (means of 3.78 and 4.00, respectively), while white males indicated slightly higher agreement (mean = 3.65) that they were treated with respect (low values indicated agreement). All groups generally did not feel that discrimination based on sex or minority status was occurring in their profession (means 3.88 to 4.66), with almost no one strongly agreeing that discrimination or different treatment existed. Interestingly, females were least likely to feel that females were treated differently from men in the profession and minorities were least likely to feel that minorities were discriminated against, while white men were more inclined to believe discrimination against women and minorities existed.

Table 12. Importance of accomplishment, advancement, and performance awards to community/urban forestry professionals by sex and minority status. Data includes percentages (numbers of respondents in parentheses) and means with standard deviations.

	Not at all Important 1	Not very Important 2	No Opinion 3	Important 4	Very Important 5	Mean (SD) ^a
a. My profession provides a feeling of accomplishment. (Questions 14d, c)						
White Male	<1% (1)	1% (2)	3% (8)	27% (64)	69% (166)	4.67 ± 0.20 (0.50)
Female	<1% (2)	<1% (1)	0% (0)	24% (60)	75% (190)	4.76 (0.45)
Minority	0% (0)	0% (0)	3% (2)	24% (18)	74% (56)	4.69 (0.45)
b. The ability to advance through management. (Question 14e)						
White Male	12% (28)	15% (35)	17% (40)	39% (92)	17% (40)	3.42 ± 0.20 (1.37)
Female	6% (15)	19% (48)	22% (55)	39% (96)	14% (35)	3.45 (1.26)
Minority	8% (6)	14% (10)	22% (16)	40% (29)	16% (12)	3.54 (1.30)
c. The chances for receiving a performance award (bonus or raise) are not important. (Question 14b)						
White Male	14% (33)	15% (36)	18% (42)	36% (85)	17% (41)	3.33 ± 0.06 (1.43)
Female	9% (22)	18% (45)	20% (50)	36% (90)	18% (44)	3.44 (1.34)
Minority	14% (10)	20% (15)	11% (8)	36% (27)	19% (14)	3.30 (1.42)

^a White male data include mean ± 95% confidence interval and standard deviation (SD), while female and minority data include only mean and SD. Means and standard deviations do not include “no opinion” responses.

Table 13. Attitudes regarding discrimination in the community/urban forestry profession by sex and minority status. Data include percentages (numbers of respondents in parentheses) and means with standard deviations.

	Strongly Agree 1	Somewhat Agree 2	Agree 3	Disagree 4	Somewhat Disagree 5	Strongly Disagree 6	Mean (SD) ^a
a. I am treated with respect in this profession. (Questions 15 l, s)							
White Male	<1% (1)	23% (45)	21% (41)	20% (39)	13% (25)	24% (47)	3.65 ± 0.22 (1.60)
Female	0% (0)	15% (35)	19% (42)	27% (61)	19% (44)	20% (45)	3.78 (1.43)
Minority	2% (1)	10% (6)	26% (16)	21% (13)	23% (14)	18% (11)	4.00 (1.21)
b. There is discrimination against minorities in this profession. (Questions 15 p, v, hh)							
White Male	0% (0)	1% (2)	14% (29)	74% (158)	11% (24)	<1% (1)	3.88 ± 0.07 (0.54)
Female	0% (0)	0% (0)	14% (31)	71% (155)	14% (30)	<1% (1)	3.95 (0.54)
Minority	0% (0)	1% (1)	4% (3)	66% (47)	24% (17)	4% (3)	4.21 (0.65)
c. Men and women are treated differently in this profession. (Question 15 gg)							
White Male	1% (2)	0% (0)	5% (12)	33% (81)	60%(147)	<1% (1)	4.54 ± 0.12 (0.98)
Female	<1% (1)	1% (2)	1% (3)	27% (69)	70%(177)	0% (0)	4.66 (0.59)
Minority	0% (0)	1% (1)	1% (1)	33% (25)	64% (49)	0% (0)	4.60 (0.59)
d. Women are discriminated against in this profession. (Questions 15 g, y, aa)							
White Male	0% (0)	3% (7)	22% (47)	55% (118)	17% (37)	2% (5)	4.09 ± 0.10 (0.73)
Female	0% (0)	0% (0)	6% (14)	51% (120)	33% (77)	10% (23)	4.13 (0.74)
Minority	0% (0)	4% (3)	30% (21)	41% (29)	21% (15)	3% (2)	4.25 (0.87)

^a White male data include mean ± 95% confidence interval and standard deviation (SD), while female and minority data include only mean and SD.

When examining the margin and end notes on individual surveys (Appendix 4), several women reported acts of sexual harassment, "good old boy" networks, and a failure to be taken seriously by their coworkers due to their sex. A smaller group indicated that people were looking for excuses to explain their lack of professional skills. Minorities did not respond in the margin notes regarding discrimination, but rather cited a lack of professionalism among coworkers. Few white males (< 10) added remarks to their surveys regarding sex and minority status of professionals. These comments ranged from not knowing of any women or minorities in community/urban forestry to concerns that minorities in the profession were bringing down the pay scale.

Intrinsic values associated with community/urban forestry varied little by sex and minority status (Table 14; Appendix 2, questions 15a, n, z, bb, dd). Most white males, females, and minorities agreed that their profession was challenging, their purpose in the profession was clear, that they had professional freedom, and that the profession was important and meaningful to them. There were no females or minorities and only a handful of white males that believed their profession was personally unimportant. Agreement was weakest for "My purpose in the profession is clear" and "I have a lot of freedom in the choices I make within this profession." Women's agreement with these statements was lower than white males or minorities, but the difference between the white males and females may arise from sampling error, as there is a substantial standard error in the white male mean. The difference between minorities and females is relevant, as they were both measured on populations.

Table 14. Attitudes regarding intrinsic values in the community/urban forestry profession by sex and minority status. Data includes percentages (numbers of respondents in parentheses) and means with standard deviations.

	Strongly Agree 1	Somewhat Agree 2	Agree 3	Disagree 4	Somewhat Disagree 5	Strongly Disagree 6	Mean (SD) ^a
a. My profession is challenging. (Question 15a)							
White Male	62% (151)	21% (52)	14% (35)	1% (2)	<1% (1)	<1% (1)	1.57 ± 0.11 (0.85)
Female	61% (154)	17% (44)	20% (52)	0% (0)	<1% (1)	1% (3)	1.66 (0.96)
Minority	64% (49)	14% (11)	18% (14)	0% (0)	3% (2)	0% (0)	1.62 (0.97)
b. My purpose in the profession is clear. (Question 15 bb)							
White Male	37% (90)	21% (50)	33% (79)	7% (17)	2% (6)	0% (0)	2.17 ± 0.14 (1.09)
Female	32% (82)	23% (57)	33% (83)	8% (20)	3% (8)	1% (3)	2.30 (1.16)
Minority	38% (30)	18% (14)	35% (27)	4% (3)	3% (2)	3% (2)	2.21 (1.22)
c. I have a lot of freedom in the choices I make within this profession. (Question 15z)							
White Male	37% (89)	23% (55)	28% (69)	9% (21)	3% (8)	<1% (1)	2.21 ± 0.15 (1.15)
Female	33% (83)	22% (56)	32% (81)	7% (18)	4% (11)	2% (5)	2.34 (1.23)
Minority	38% (30)	23% (18)	28% (22)	9% (7)	<1% (1)	0% (0)	2.11 (1.07)
d. The things I do in my profession are important to me. (Question 15n)							
White Male	66% (160)	12% (29)	21% (52)	<1% (1)	0% (0)	1% (2)	1.60 ± 0.12 (0.93)
Female	67% (168)	15% (37)	19% (47)	0% (0)	0% (0)	0% (0)	1.52 (0.79)
Minority	74% (58)	6% (5)	19% (15)	0% (0)	0% (0)	0% (0)	1.45 (0.80)
e. The work I do in this profession is meaningful to me. (Question 15dd)							
White Male	62% (151)	14% (35)	23% (55)	1% (2)	<1% (1)	0% (0)	1.64 ± 0.11 (0.89)
Female	65% (165)	11% (28)	22% (56)	<1% (1)	1% (3)	1% (2)	1.64 (1.00)
Minority	64% (50)	14% (11)	22% (17)	0% (0)	0% (0)	0% (0)	1.58 (0.83)

^a White male data include mean ± 95% confidence interval and standard deviation (SD), while female and minority data include only mean and SD.

Personal work ethic was also evaluated with questions on working without supervision, work ethic, and level of effort exerted by the respondents (Table 15; Appendix 2, questions 15d, e, o). Nearly all respondents agreed that they had strong work habits, with very little deviation between sexes or minority status.

Respondent attitudes were mixed regarding income level, advancement opportunity, and rewards (e.g., pay raises) (Table 16, Appendix 2, questions 15c, f, h, m). Respondents generally believe there was job security in the profession, with little difference based on sex or minority status. White males, females, and minorities agreed (mean of 3.04 to 3.19 where 6 = Strongly disagree) that there was too much work for their remuneration, yet they also agreed there were opportunities for advancement and good fringe benefits. Females' perceptions of their promotion opportunities were the weakest (3.42), while minorities felt the strongest opportunity for promotion (3.09). The white males in this survey reported stronger opportunities for advancement (3.12 ± 0.18) than the females, although they may have perceived opportunities equal to or higher than minorities. Women were more likely to feel that their fringe benefits were good compared to minorities and white males. Incomes in the profession varied by sex and minority status, with minorities reporting higher average incomes than white males and females (Figure 2).

Even though their incomes may not have been as much as desired (Table 17, question a; Appendix 2, question 15k), respondents consistently reported a high level of satisfaction in community/urban forestry (Table 17, question b). The degree of professional satisfaction was slightly higher for minorities but no respondents mentioned strong negative feelings.

Table 15. Attitudes regarding personal work habits in the community/urban forestry profession by sex and minority status. Data includes percentages (numbers of respondents in parentheses) and means with standard deviations.

	Strongly Agree 1	Somewhat Agree 2	Agree 3	Disagree 4	Somewhat Disagree 5	Strongly Disagree 6	Mean (SD) ^a
a. I can work without supervision. (Question 15e)							
White Male	85% (206)	9% (21)	6% (15)	0% (0)	0% (0)	<1% (1)	1.23 ± 0.08 (0.62)
Female	89% (224)	5% (13)	6% (14)	0% (0)	0% (0)	1% (2)	1.20 (0.66)
Minority	79% (60)	9% (7)	9% (7)	1% (1)	0% (0)	1% (1)	1.38 (0.88)
b. I have a strong work ethic. (Question 15d)							
White Male	78% (189)	10% (25)	12% (28)	0% (0)	0% (0)	<1% (1)	1.35 ± 0.09 (0.74)
Female	80% (203)	10% (25)	10% (25)	0% (0)	0% (0)	<1% (1)	1.31 (0.70)
Minority	67% (60)	18% (14)	12% (9)	1% (1)	0% (0)	1% (1)	1.53 (0.92)
c. I work hard at my profession. (Question 15o)							
White Male	74% (181)	11% (27)	14% (35)	0% (0)	0% (0)	<1% (1)	1.42 ± 0.10 (0.78)
Female	74% (188)	11% (27)	15% (37)	<1% (1)	0% (0)	0% (0)	1.41 (0.75)
Minority	69% (54)	12% (9)	18% (14)	1% (1)	0% (0)	0% (0)	1.51 (0.83)

^a White male data include mean ± 95% confidence interval and standard deviation (SD) while female and minority data include only mean and SD.

Table 16. Attitudes regarding benefits in the community/urban forestry profession by sex and minority status. Data includes percentages (numbers of respondents in parentheses) and means with standard deviations.

	Strongly Agree 1	Somewhat Agree 2	Agree 3	Disagree 4	Somewhat Disagree 5	Strongly Disagree 6	Mean(SD) ^a
a. There is no job security within this profession. (Question 15c)							
White Male	7% (17)	11% (25)	10% (24)	34% (82)	20% (47)	18% (43)	4.03 ± 0.13 (1.03)
Female	4% (10)	13% (31)	14% (34)	40% (99)	16% (42)	13% (32)	3.92 (1.30)
Minority	8% (6)	13% (10)	15% (11)	32% (24)	15% (11)	17% (13)	3.84 (1.50)
b. I have the opportunity for promotion. (Question 15m)							
White Male	16% (39)	17% (40)	30% (73)	19% (46)	10% (25)	7% (17)	3.12 ± 0.18 (1.43)
Female	9% (23)	20% (50)	23% (57)	26% (65)	13% (34)	9% (23)	3.42 (1.41)
Minority	12% (9)	21% (16)	36% (27)	15% (11)	8% (6)	8% (6)	3.09 (1.38)
c. My job, within the profession, requires too much work for the amount of compensation I receive. (Question 15f)							
White Male	16% (40)	19% (47)	23% (55)	25% (60)	7% (18)	9% (23)	3.16 ± 0.19 (1.49)
Female	13% (33)	28% (70)	21% (53)	24% (60)	7% (18)	7% (17)	3.04 (1.40)
Minority	15% (11)	23% (17)	19% (14)	25% (19)	11% (8)	8% (6)	3.19 (1.49)
d. The fringe benefits in my profession are good. (Question 15h)							
White Male	11% (27)	16% (39)	36% (87)	16% (40)	10% (24)	10% (23)	3.27 ± 0.18 (1.41)
Female	14% (35)	19% (46)	37% (91)	17% (43)	9% (21)	4% (11)	3.01 (1.29)
Minority	12% (9)	15% (11)	39% (28)	17% (12)	6% (4)	11% (8)	3.21 (1.42)

^a White male data include mean ± 95% confidence interval and standard deviation (SD), while female and minority data include only mean and SD.

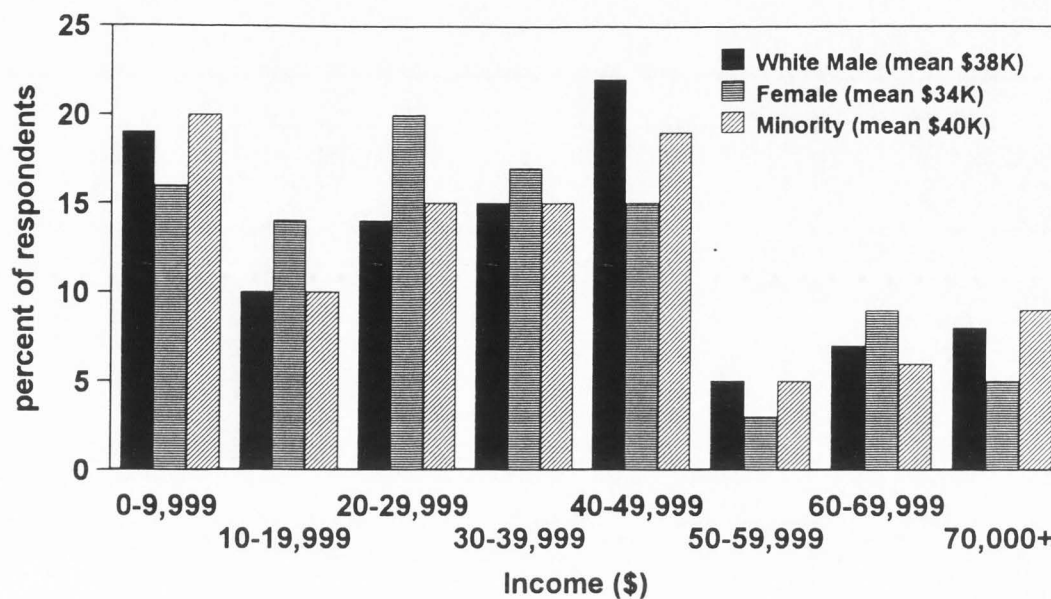


Figure 2. Income from community/urban forestry jobs by sex and minority status based on the in-depth survey. Percentages indicate proportion of responses within a sex or minority status category (white male $n = 244$; female $N = 255$; minority $N = 71$).

Motivations and volunteering. Initial motives for entering the profession of community/urban forestry did not vary widely (Table 18). Regardless of sex or minority status, altruistic goals (e.g., saving the earth, love of trees or plants) were the main reasons for entering the profession. Men and minorities rated potential income and past experiences as the next most important motivations, while females mentioned curiosity, past experiences, and income potential.

Most respondents (> 65%) participate in volunteer activities related to their careers. Females were slightly more likely to be involved in volunteer activities than minorities and white males (Figure 3). Examples of the volunteer work included Arbor Day activities, tree care workshops, community tree planting, and educational activities for youth. The same

pattern exists in the participation within professional organizations, but since most of the survey respondents were selected from professional groups (ISA or SAF), the high participation in these groups (between 94-97% of the respondents belonged to at least one professional organization) should be expected.

Table 17. Attitudes regarding general satisfaction in the community/urban forestry profession by sex and minority status. Data includes percentages (numbers of respondents in parentheses) and means with standard deviations.

	Strongly Agree 1	Somewhat Agree 2	Agree 3	Disagree 4	Somewhat Disagree 5	Strongly Disagree 6	Mean (SD) ^a
a. The salary is not enough to justify the work. (Question 15k)							
White Male	8% (18)	14% (33)	20% (47)	34% (82)	13% (31)	11% (27)	3.66 ± 0.18 (1.38)
Female	5% (13)	16% (39)	16% (40)	38% (93)	13% (32)	13% (31)	3.74 (1.35)
Minority	10% (8)	10% (8)	21% (16)	32% (25)	17% (13)	9% (7)	3.62 (1.41)
b. I am satisfied with my profession. (Questions 15b, 15q and u -- reverse coded)							
White Male	41% (98)	42% (102)	14% (34)	2% (6)	<1% (1)	0% (0)	1.76 ± 0.09 (0.73)
Female	40% (102)	44% (111)	13% (34)	2% (4)	<1% (1)	0% (0)	1.74 (0.71)
Minority	46% (35)	41% (31)	12% (9)	1% (1)	0% (0)	0% (0)	1.66 (0.67)

^a White male data include mean ± 95% confidence interval and standard deviation (SD), while female and minority data include only mean and SD.

Table 18. Motivations for entering the community/urban forestry profession by sex and minority status, with percentages (number and of respondents).

	White Male n = 220	Female N = 238	Minority N = 64
ALTRUISTIC REASONS	70% (153)	76% (182)	59% (38)
Love of trees, plants	61% (135)	55% (130)	44% (28)
Help community	3% (7)	11% (26)	6% (4)
Save planet	5% (1)	11% (26)	9% (6)
PERSONAL REASONS	30% (67)	24% (56)	41% (26)
Potential income	11% (24)	5% (11)	11% (7)
Background/experience in profession	6% (13)	4% (10)	9% (6)
Family/friends in profession	5% (10)	4% (9)	3% (2)
Challenge	3% (7)	1% (3)	2% (1)
Freedom	2% (4)	1% (3)	0% (0)
Responsibility	2% (4)	2% (4)	3% (2)
Curiosity	1% (3)	5% (11)	4% (3)
Enjoy profession	1% (2)	1% (3)	8% (5)
Different	0% (0)	1% (2)	0% (0)

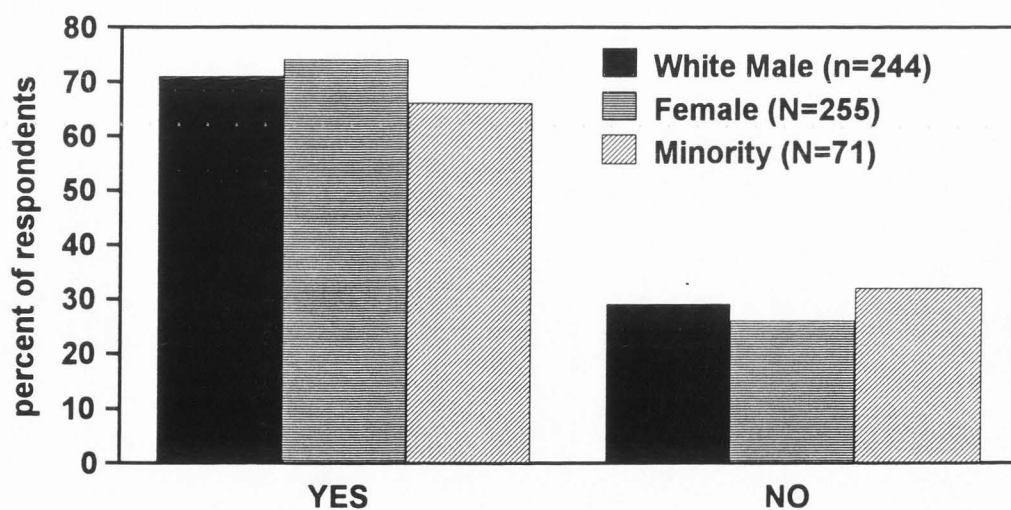


Figure 3. Proportions of respondents within sex or minority status category who reported taking part in volunteer work related to their profession (Appendix 2, question 3).

CHAPTER V

DISCUSSION

This study confirmed that women and minorities were underrepresented in community/urban forestry, with over 80% of those surveyed being white males compared to 48% of the American work force being white male (Anderson et al. 1996). This is consistent with SAF and the USDA reporting low representation of women and minorities in their organizations (Anderson et al. 1996, Civil Rights Action Team 1997).

Women and minorities were concentrated disproportionately in certain jobs, including state forestry, municipal forestry, extension, and teaching. Minorities were concentrated in arboriculture and landscape maintenance jobs and in public-sector positions, paralleling the findings of Teeter et al. (1990) who also found higher concentrations of women in public sector forestry positions (though their definition of the public sector differed from this study). The clustering may result partly from changes in hiring practices initiated by the Civil Rights Act of 1964 with affirmative action programs increasing the numbers of women and minorities in the public sector positions (Naff 1994), possibly extending into community and urban forestry. Concentrations of women and minorities in certain jobs may also reflect perceptions of the traditional roles women and minorities play in natural resource professions. For example, Kennedy (1982) found through surveys and personal experiences that people in timber management jobs (a "man's" job) were treated differently from those in recreation jobs (considered "women's" work).

Comparing attitudes about the profession by sex and minority status revealed some interesting similarities and differences. High ratings for work ethic, overall satisfaction with the profession, and intrinsic values regardless of sex or minority status suggest that community/urban forestry professionals have similar values related to their work and profession. This contradicts Corwin (1971) who found differences in most attitudes (including work ethic) between minorities and non-minorities in the banking profession. This difference could be due to the initial motivations for entering community/urban forestry, although Corwin (1971) did not examine this aspect.

Motivations for entering the community forestry profession were very similar and independent of race or sex, with all groups citing a love of nature, trees, and simple enjoyment of the outdoors as the primary reasons for going into community/urban forestry. Marckworth and Buttrick (1939) found that love of the outdoors was the predominant reason for men entering forestry, with good job opportunities and public service outlook being the next most important reasons. While this study was conducted in 1939, many of the motivations they found continue to exist today. Mentoring and school counseling did not play large roles in the selection of community/urban forestry professions by these respondents, consistent with the findings of Wellman (1987*a,b*) and Wright and Floyd (1990), and counter to the findings of Kennedy and Roper (1990) and Carroll et al. (1996). A study of Canadian forestry students revealed that these students tended to be idealistic when choosing a career, looking for experiences in nature and personal satisfaction in their career rather than money or advancement (Mayer 1987). This idealism may relate to the willingness found for professionals in community/urban forestry to participate in job-related volunteer activities,

and the high value these professionals place on intrinsic values in their work. Respondents to this study indicated that personal feelings of value and satisfaction were more important than the monetary aspects of the profession.

In general, women, white men, and minorities in this study did not believe that discrimination existed in community/urban forestry professions. However, the strong work ethic of the respondents could mask issues of discrimination on the job. Respondents were often reluctant to answer questions regarding respect from coworkers, with approximately 15% of the minorities and 10% of the women skipping questions on discrimination. Neuman (1994) stated that sensitive questions often have low response rates, possibly suggestive of underlying issues that may lead to nonresponses.

England et al. (1996) found that income disparities between sexes can indicate institutional discrimination, so the income disparity in community/urban forestry may suggest that some discrimination is occurring. These results indicate that women in community/urban forestry make less money on average than white males or minorities, which could contribute to the underrepresentation of females [remember that Wright and Floyd (1990) found income was important to females in career selection]. Cripe (1991) also found that women and men in similar professional positions earned different wages. It needs to be emphasized that in both Cripe's (1991) study and this study that the women have been in the profession for shorter times compared to white males and minorities, which contributes to the income disparity. Though I attempted to control for years of experience in this study, the numbers of women and minorities were too small (< 10 individuals) to draw reliable conclusions.

Hiring and discrimination in community/urban forestry may be changing. The average age of women and minorities in community/urban forestry professions is lower than that of white men, supporting the idea that community forestry is a relatively new profession for women and minorities. The women in this study also had higher education levels than the white males and minorities surveyed, results comparable to Cripe's (1991) findings regarding educational attainment of female NPS employees.

Overall, regardless of sex or minority status, the respondents to this survey indicated high levels of satisfaction with their profession. Most respondents believed their profession requires too much work for the compensation received, yet they also indicated that the salary was enough for them. Respondents also indicated that salary, fringe benefits, and advancement potential were not as important as a sense of accomplishment. The general satisfaction reported by community/urban forestry professionals mirrors that of banking and accounting professionals (Corwin 1971, Miller 1994*b*). Even when faced with discrimination, many professionals report satisfaction with their careers (Skurzynski 1981, Teeter et al. 1990, Cripe 1991).

CHAPTER VI

CONCLUSIONS

This research illustrates many similarities in community and urban forestry professionals but also highlights some differences. People in the professional societies surveyed for this study are very devoted to and satisfied with their careers. Perceived discrimination at the professional level appears to be minimal, though a few individuals may be creating hostile experiences and some institutional discrimination may exist.

Women and minorities are concentrated in public and non-profit sectors as opposed to private sector organizations. Women and minorities were especially common in state and federal jobs, as well as in city government positions. Though minorities had fairly high representation in private sector positions, they were mostly in labor-intensive positions in that sector. Women were found primarily in non-labor-intensive positions and in positions that dealt extensively with public interactions, rather than in traditionally "male" positions.

Professionals surveyed in this study indicated that they did not feel discriminated against at the professional level, yet their comments revealed that there may be some level of discrimination occurring at the individual level. Factors that may be contributing to discrimination may not have been completely revealed through this study. The people who chose to pursue professions in community forestry reported very similar attitudes regarding motivations, work ethic, and overall satisfaction. These similarities may be some of the reasons behind the low level of perceived discrimination, but they do not account for the low representation of women and minorities in this profession.

Women in the community/urban forestry profession tend to make less money but are higher educated than their white male and minority counterparts. This low income may be a reason behind the underrepresentation of women in the profession. Women and minorities are still relatively new to the profession of community/urban forestry, generally being younger and less experienced. The seemingly recent influx of women and minorities in this profession may create more mentoring experiences, thus bolstering the awareness of professional opportunities among underrepresented populations and perhaps creating a more diverse work force.

CHAPTER VII

FUTURE RESEARCH NEEDS

This study should be repeated in several years to assess changes in the professional societies. A longitudinal study would provide information on changing demographics and attitudes in the profession, and evaluate trends in income and education levels. Any future studies should use similar survey tools, though questions regarding disabilities could be restyled in an attempt to gain more reliable answers. A future survey could also attempt to analyze hiring practices within the various work sectors. Since there is a clustering of women and minorities in public and non-profit organizations, issues regarding affirmative action should be examined more closely. The reasons for these concentrations in different jobs and work sectors revealed in this study are unclear. Further research on the hiring criteria of organizations employing community/urban forestry professionals should be conducted to expose why concentrations of women and minorities in certain types of jobs occur.

Continued research is needed on motivations and recruiting techniques that may contribute to underrepresentation of women and minorities. By gaining further insight into the motivations of future community or urban foresters at the college level, professional organizations can plan strategies to make the profession more appealing to incoming and graduating students. This research should be conducted simultaneously with a study of current professionals so that differences in opinions can be related.

Although there did not appear to be substantial differences in attitudes of white males, women, and minorities practicing community/urban forestry, a further in-depth multi-variate

analysis could be conducted to see if there are any different relationships between questions to provide insight into potential differences that may exist, and reveal options for future research.

A qualitative study, such as Blahna and Black's (1993) examination of minority involvement in recreational settings, also could take place where the respondents' margin and side comments would be examined in more detail. While the discrimination questions I asked did not unearth evidence of discrimination, marginal notes were more suggestive. These comments should be examined more closely, and a follow-up survey could reveal the extent of individual discrimination occurring in community/urban forestry, thus allowing improvements to be made at the professional level.

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APPENDICES

Appendix 1. Postcard Survey Administered to Community/Urban Forestry Professionals

1 a) Postcard Survey: 1995

Urban/Community Forestry Survey—from the National Urban & Community Forestry Advisory Council and Utah State University's Department of Forest Resources

1. Do you work in an urban/community forestry-related profession at least part-time?
 No Yes
2. What type of organization do you work for? (check one)
 Public
 Private Non-Profit
 Private For-Profit
3. What type of work do you do? (check all that apply, then circle one primary type)
 Municipal Forestry State Forestry
 Arboriculture Nursery Park Mgmt.
 Research Extension Teaching
 Landscape Maint. Utility Forestry
 Landscape Architecture Student
 Other/Specify: _____
4. Gender:
 Male
 Female
5. Race/ethnicity (check all that apply): White African-American
 American Indian/Alaskan Native Asian/Pacific Islander
 Hispanic Other: _____
6. Disability: None Non-ambulatory (wheel-chair) Semi-ambulatory Psychological
 Sight Hearing Speech Learning Coordination Other: _____

Thank you for your participation! All responses will be kept strictly confidential.

We will be sending a survey about urban forestry professions to a sample of ISA and SAF members and state urban forestry coordinators soon.

Please help us by responding if you receive one of these surveys.

1 b) Postcard survey: 1996

**Utah State
UNIVERSITY**

**Second Notice
Please Reply**

Natural Resources/Forestry Survey—from the National Urban & Community Forestry Advisory Council and Utah State University's College of Natural Resources

1. Do you work in an urban/community forestry-related profession at least part-time? **Please return card even if you answer no.**
 No Yes
2. What type of organization do you work for? (check one)
 Public
 Private Non-Profit
 Private For-Profit
3. What type of work do you do? (check all that apply, then circle one primary type)
 Municipal Forestry State Forestry
 Arboriculture Nursery Park Management.
 Research Extension Teaching
 Landscape Maint. Utility Forestry
 Landscape Architecture Student
 Other/Specify: _____
4. Gender:
 Male
 Female
5. Race/ethnicity (check all that apply): White African-American
 American Indian/Alaskan Native Asian/Pacific Islander
 Hispanic Other: _____
6. Disability: None Non-ambulatory (wheel-chair) Semi-ambulatory Psychological
 Sight Hearing Speech Learning Coordination Other: _____

Thank you for your participation! Responses are confidential.

Appendix 2. Detailed Attitude Survey Administered to Community/Urban Forestry Professionals

Dear Survey Participant,

Thank you for your participation in our initial demographics survey (a yellow postcard). This provided us with a large, nationwide group of community forestry professionals. You were selected from that larger group to receive a more detailed survey regarding your involvement in community forestry.

It is very important that we get your completed survey. It will take about 10 minutes to complete; please answer as completely as possible and return it to us in the enclosed self-addressed stamped envelope.

If you do not know the answer to any question, just write "DK" next to it and continue on to the next question.

Your responses will be kept strictly confidential.

Thank you for your cooperation.

Mike Kuhns
Associate Professor
Department of Forest Resources
Utah State University

Hope Bragg
Graduate Research Assistant
Department of Forest Resources
Utah State University

First, we would like to know about your reasons for going into community forestry, your involvement within the profession, and your training and education.

In this survey, "profession" refers to all fields of community forestry, while a "job" refers to your specific role within the profession.

1a. What is your current profession?

1b. Within this profession, are you (check only one):

- self employed *or* business owner
 an entry level employee
 a mid-level employee
 middle management
 upper-level management

1c. How long have you been in this profession?

_____ years (and/or) _____ months

2. What is your current job within this profession?

3. Do you take part in volunteer work related to your current profession (*example*: Arbor day activities)?

- Yes =====>
 No

Please List:

4. Do you belong to any organizations related to community or urban forestry?

(*example*: International Society of Arboriculture)

- Yes =====>
 No

Please list:

5. Please list the most important reasons why you went into this profession.

6. In general, how satisfied are you with your profession?

- Very Satisfied
 Satisfied
 Indifferent
 Dissatisfied
 Very Dissatisfied

7. What is your highest level of education completed?

- Grade School
 High School Go to question 14
 Technical School
 Some College
 Associates Degree Continue to question 8
 Bachelors Degree
 Masters Degree
 Doctorate
 Other (*explain*) _____

What was your degree program in college or technical school?

8. Major(s):

9. Minor(s):

10. Technical program(s):

11. Why did you choose the course work that you did (as listed in questions 8-10)?

12. What subject areas or skills do you feel you are lacking that would help you in your profession.

13. In general, how satisfied are you that your education has prepared you for this profession?

- Very Satisfied
 Satisfied
 Dissatisfied
 Very Dissatisfied

Explain? _____

14. How important are each of the following to you in your current profession? Please **FILL** in the circle that best describes your feelings.

<i>Not at all Important</i>	<i>Not Very Important</i>	<i>No Opinion</i>	<i>Important</i>	<i>Very Important</i>
①	②	③	④	⑤

- a. The amount of job security within the profession.
① ② ③ ④ ⑤
- b. The chances for receiving a performance award (bonus or raise).
① ② ③ ④ ⑤
- c. A feeling of accomplishment from the profession.
① ② ③ ④ ⑤
- d. The opportunity to accomplish something worthwhile.
① ② ③ ④ ⑤
- e. The ability to advance through management.
① ② ③ ④ ⑤
- f. The ability to make a difference.
① ② ③ ④ ⑤

15. How do you feel about your profession? Please indicate the extent that you agree or disagree with the following statements by filling one circle. Comments are welcome in the margins.

<i>Strongly Agree</i>	<i>Somewhat Agree</i>	<i>Agree</i>	<i>Disagree</i>	<i>Somewhat Disagree</i>	<i>Strongly Disagree</i>
①	②	③	④	⑤	⑥

- a. My profession is challenging.
① ② ③ ④ ⑤ ⑥
- b. In general, I am satisfied with my profession.
① ② ③ ④ ⑤ ⑥
- c. There is no job security within this profession.
① ② ③ ④ ⑤ ⑥
- d. I have a strong work ethic.
① ② ③ ④ ⑤ ⑥
- e. I can work without supervision.
① ② ③ ④ ⑤ ⑥
- f. My job, within this profession, requires too much work for the amount of compensation I receive.
① ② ③ ④ ⑤ ⑥
- g. Women are generally treated unfairly in this profession.
① ② ③ ④ ⑤ ⑥
- h. The fringe benefits in my profession are good.
① ② ③ ④ ⑤ ⑥
- i. There are plenty of opportunities for me to advance in my career within this profession.
① ② ③ ④ ⑤ ⑥
- j. My education is keeping me from succeeding in my profession.
① ② ③ ④ ⑤ ⑥
- k. The salary is not enough to justify the work.
① ② ③ ④ ⑤ ⑥
- l. I am treated with respect by my supervisors.
① ② ③ ④ ⑤ ⑥
- m. I have the opportunity for promotion.
① ② ③ ④ ⑤ ⑥
- n. The things I do in my profession are important to me.
① ② ③ ④ ⑤ ⑥
- o. I work hard at my profession.
① ② ③ ④ ⑤ ⑥
- p. Minorities get better opportunities within this profession compared to non-minorities.
① ② ③ ④ ⑤ ⑥

- q. I am dissatisfied with the work in my present profession.
① ② ③ ④ ⑤ ⑥
- r. My profession makes good use of my abilities.
① ② ③ ④ ⑤ ⑥
- s. I am treated with respect by my fellow employees.
① ② ③ ④ ⑤ ⑥
- t. I have considered changing my current profession.
① ② ③ ④ ⑤ ⑥
- u. In general, I do not like this profession.
① ② ③ ④ ⑤ ⑥
- v. Minorities within this profession are not given the same opportunities as others.
① ② ③ ④ ⑤ ⑥
- w. I would move if my profession required it.
① ② ③ ④ ⑤ ⑥
- x. I enjoy the fieldwork associated with my profession.
① ② ③ ④ ⑤ ⑥
- y. Men are often treated unfairly in this profession (in general).
① ② ③ ④ ⑤ ⑥
- z. I have a lot of freedom in the choices I make within this profession.
① ② ③ ④ ⑤ ⑥
- aa. Women have better chances to advance in their careers within this profession than men.
① ② ③ ④ ⑤ ⑥
- bb. My purpose in the profession is clear.
① ② ③ ④ ⑤ ⑥
- cc. I do not /will not try to influence my children's career choices.
① ② ③ ④ ⑤ ⑥
- dd. The work I do in this profession is meaningful to me.
① ② ③ ④ ⑤ ⑥
- ee. I enjoy the work in this profession because of the personal satisfaction it gives me.
① ② ③ ④ ⑤ ⑥
- ff. I would (or will) encourage my children to go into this profession.
① ② ③ ④ ⑤ ⑥
- gg. Men and women are treated differently in this profession.
① ② ③ ④ ⑤ ⑥
- hh. Minorities are treated equally to non-minorities in this profession.
① ② ③ ④ ⑤ ⑥
- ii. People with disabilities have the same opportunities as those without disabilities in this profession.
① ② ③ ④ ⑤ ⑥
- jj. Disabled people can be active in the community forestry profession.
① ② ③ ④ ⑤ ⑥

Finally, some questions regarding your background. All questions are strictly confidential and will only be used in summaries like the graphs on page 3 of this survey.

16. What is your sex (gender)?
- Male
 - Female
17. What is your age? _____
18. What do you consider to be your race? (*Check all that apply*)
- White or Caucasian
 - Black or African American
 - American Indian or Alaskan Native
 - Asian or Pacific Islander
 - Other (*specify*) _____
19. Are you of Spanish or Hispanic ethnicity?
- No
 - Yes, Mexican, Mexican American, Chicano
 - Yes, Puerto Rican
 - Yes, Cuban
 - Other (*specify*) _____
20. What disabilities do you have, if any? (*Check all that apply*)
- None
 - Non-Ambulatory (Wheelchair)
 - Semi-Ambulatory
 - Sight
 - Speech
 - Hearing
 - Learning
 - Coordination
 - Psychological
 - Other (*specify*) _____

21. What is your total household income?

- \$7,500 or less
- \$7,501 to \$15,000
- \$15,001 to \$25,000
- \$25,001 to \$35,000
- \$35,001 to \$50,000
- \$50,001 to \$75,000
- \$75,001 to \$100,000
- \$100,001 or over

22. Approximately what percent of this income is from a community or urban forestry related job? _____%

THANK YOU FOR YOUR HELP!!!!

Please return survey in the self-addressed stamped envelope.

Appendix 3. Reminder Postcard for Detailed Survey

Dear Community Forestry Professional;

We recently sent you a detailed survey regarding your feelings towards the profession of community forestry. If you have already returned a completed survey to us, thank you, for your input has been greatly appreciated.

If you are still working on it, we encourage you to complete the survey, and return it to us in the self-addressed stamped envelope included in the original mailing. Your opinions are very important to us, and we value any insight that you can provide into this project.

Thank you for your assistance.

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Appendix 4. Comments Encountered in Margin and End Notes from an Attitudinal Survey Regarding Discrimination in Community/Urban Forestry. Sex and Minority Status is Provided in Parentheses [White Male (WM), White Female (WF) and Minorities (MIN)]

- Discrimination is a strawman people set up to excuse personal failure. (WF)
- The tree department in our city is still “good old boyish.” They aren’t ready for women yet, but someday... (WF)
- What minorities? I don’t experience this. (WF)
- ...only know of one or two women in the trade. (WM)
- There is no such thing as a level playing field, and motivation to accomplish anything must start from within. If desired goal is truly worth attaining the struggle to achieve it is at best secondary. (WM)
- There is a bias against hiring women for “heavy” landscaping or maintenance, but bias towards women for “high-end” gardening and professional design/sales, horticulture work that involves more thinking, writing, and talking. (WF)
- The “Good ‘ol Boy” network is alive and well within the profession. (WF)
- White, male, balding dominant. (MIN)
- Women and minorities as of my knowledge do not proceed in this occupation. It is too labor intensive. There are exceptions to this, but they are few. (WM)
- Minorities get the low paying jobs for all the landscape jobs. (WF)
- It’s a man’s profession. (WF)
- If I wanted part of another sales rep’s territory, all I had to do was sleep with him. (WF)
- If there are few minorities in urban forestry, it is because there are few minorities studying the discipline that lead to this profession. (WM)
- ...as a woman with a disability, I have been extremely sensitive to the potential for “real” or “perceived” favoritism or discrimination. My findings are that qualifications are the determining factors, not race, sex or disability. (WF)
- I feel it is the other way around. Minorities get used and aren’t compensated enough. (WM)

- I am disappointed that any survey in this day and age focuses so much attention on race, sex and physical ability. (WM)
- Opportunity for minorities to advance in this profession, but only if the employer supports their effort to learn English. (WF)
- Mostly verbal abuse and unneeded comments that I just ignore and/or live with. (WF)
- I've found there are some folks with a mind set "I'll never change" and unfortunately this is a lot of times younger men. (WF)
- I have seen many double standards within situations in 14 years, mostly on the local level, state level is okay. (WF)
- Clients can be a problem, they are sexist. (WF)
- Women seem to have an edge for consideration in promotions in this profession (management positions, educational and research promotions). The gender pendulum has swung, or so it seems in Michigan. (WM)
- I think opportunities for women are increasing daily. (WF)
- on women... "they are treated the same, equal." (WM)
- on minorities... "they are treated better sometimes." (WM)
- Tendencies for introverted people to gravitate to forestry to get away from people, most jobs are people jobs, there is no "hermit in the woods" existence. (WM)
- If this survey was funded by NUCFAC -- it was a waste of funding. (WF)
- A competent, self-confident person will be treated like one, a person always trying to make excuses for their inabilities or inadequacies will probably find it easy to be discriminated against because they are discriminating against themselves. (WF)
- There are not a significant number of minorities being trained or who choose this profession. We have trained nearly 200 foresters as data collectors for our inventory and there have been about six blacks, three Asians, a few Hispanics, and no one with disabilities. (WF)
- Frustrating to be a women in the business particularly because of unequal treatment and the rumors that are inevitable. (WF)
- I was assumed to be a lesbian. (WF)

- I was assumed to be a secretary or the boss's daughter or wife, if I got along with male co-workers, I'm assumed to be having an affair with them. (WF)
- I've had to work harder and be better to be judged as my male counter-parts equal. (WF)
- [minorities] lower the wage scale. (WM)
- on minorities..."they are given preferential treatment." (WF)
- I do not know very many minorities or disabled persons in urban forestry. Or women for that matter. (WF)