

INVOLVEMENT OF WOMEN AND MINORITIES IN THE URBAN FORESTRY PROFESSION

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Abstract. In a nationwide U.S. study, we found that 10% of urban forestry professionals were women and 5% minorities. Women generally were younger, better educated, and had less time in their profession than white males, and they most often held public or private nonprofit positions. Minorities were older and less educated than women or white males. Compared to white males, there was a considerably higher proportion of minorities and a lower proportion of females in higher income categories (above US\$50,000 per year). We describe the profession's demographics and discuss reasons for and implications of a relative lack of diversity in this profession.

Key Words. Urban forestry; arboriculture; ISA; SAF; minorities; women; gender; careers; diversity; income.

Women and minorities are well established in many professions in the United States, holding entry-level to upper management positions. However, entry and advancement of females and minorities in natural resource professions is thought by many to be lagging behind what is needed (Otero and Brown 1996), an impression strengthened by comparing forestry employment data with overall U.S. labor force demographics (U.S. Census Bureau 1998). In this paper, we consider urban forestry, a natural resource profession that might appear to provide different and more attractive opportunities for women and minorities than forestry professions in general (Hildebrandt et al. 1993) and in particular might be attractive to minorities in urban areas (Chesney 1981, Wright and Floyd 1990). The National Urban and Community Forestry Advisory Council (NUCFAC) sponsored this study to learn more about and to increase involvement of women and minorities in urban forestry professions. Such involvement is very important for the urban forestry profession, especially in today's tight labor market.

Research on women and minorities in forestry, arboriculture, horticulture, and other green industries is scarce. Starting in the 1970s, articles on women and minorities in forestry began to appear in professional journals. Payne and Theoe (1971) cited the lack of African-American recruitment by forestry schools as a primary cause of a shortage of African-American forest-

ers, along with biases of current professionals. They also speculated that African-Americans may be reluctant to enter forestry professions due to an anti-agricultural bias and the feeling that such professions are low in status and opportunity. Leatherberry and Wellman (1988) and Wellman (1987) found that high-school guidance counselors may inadequately inform minority students or may even give negative impressions of forestry careers.

Chesney (1981) studied roles of minorities in natural resource professions and barriers to minorities entering such professions. He reported that in the early 1980s, minorities held only 6% to 10% of management positions in the United States Forest Service (USFS), and only 10 out of 5,000 (0.2%) forestry positions in the USFS were held by African-Americans. He felt that minorities are needed in forestry professions so that their different cultural viewpoints are included in policy and decision-making processes, but that barriers to their hiring include resistance to change by natural resource professionals, urban orientation of minority groups, racial discrimination, a lack of role models, and low interest in hiring or recruiting minorities.

More recently, Teeter et al. (1990) reported that 59% of female Society of American Foresters (SAF) members in the southeastern United States felt that women are not entering forestry because it is perceived as a profession for men. They found that 65% of women felt that gender discrimination existed in their workplace, and 71% did not think that women have the same opportunities as men in the profession. Women also were more likely to be found in public-sector positions than private (Teeter et al. 1990). Cripe (1991) studied women's roles as natural resource professionals in the National Park Service (NPS). He found that women made less money than men and more than 50% were in secretarial and support positions rather than professional positions. Women also had less time on the job than men; 42% of women had been in the NPS for fewer than 10 years, compared to 25% of men. Salary differentials may have been the result of discrimination, differences in education, differences in experience, or all three.

Very little is known about attributes and experiences of women and minorities in less traditional forestry and natural resource professions, particularly in urban forestry. Though the SAF asks applicants to provide basic demographic data including gender and race/ethnicity, the International Society of Arboriculture (ISA) collects no such data. In this study, we looked at demographics of white male, female, and minority urban forestry professionals, and compared their income, job types, and advancement within the profession. We also looked at differences between urban forestry professionals in two major and very different professional groups, ISA and SAF. We hope to encourage a better understanding of the diversity of urban forestry professionals and to add to the discussion of what the profession can do to increase its appeal to a diverse population, especially with today's tight labor market.

METHODS

In 1996, we conducted two surveys of urban forestry professionals in the United States. The first was a postcard survey with a sampling frame of all U.S.-resident members of two major urban forestry professional organizations, ISA ($N = 6,193$) and the SAF Urban Forestry Working Group ($N = 1,351$), along with all state urban forestry and volunteer coordinators ($N = 82$). We feel that SAF and ISA represented the two most comprehensive urban forestry professional groups in the United States and they also had readily available mailing lists. They are fairly different organizations though, with SAF requiring that full members have a bachelor's degree or higher, while ISA does not require a certain level of education.

The postcard survey was used to obtain employment status, job type, work sector (public, private nonprofit, private for-profit), gender, and race. The total mailing size was 7,370 with duplicates eliminated and included an initial and a repeat mailing as outlined by Dillman (1999). We received 4,232 responses, 3,721 of which were eligible (they worked at least part time in urban forestry and were not retired). We feel the postcard response provided us with a good national population of active urban forestry professionals.

A second, detailed survey was sent to 794 of the postcard respondents, including all women and minorities identified ($N = 527$) and a random sample of the white males

($n = 267$, or 8.7% of white male postcard respondents). Because the entire female and minority population was used for the detailed survey, it is not appropriate to use inferential statistics—thus, we use descriptive statistics in this study. The detailed survey consisted of attitude and motivation questions partially based on research conducted at the University of Michigan's Social Research Institute (Robinson et al. 1969). Education, income, motivations for entering the profession, and job satisfaction also were included in this ten-page questionnaire. This questionnaire was distributed in late 1996 with a repeat mailing administered two weeks later, yielding 603 responses, 42 of which were ineligible due to retirement or changes in profession, for 561 valid responses and a 75% response rate.

RESULTS AND DISCUSSION

Prevalence of Women and Minorities

The postcard survey results indicate that women and minorities are under-represented in urban forestry professions compared to the United States labor force overall but not compared to general forestry professions. We found that 10% of urban forestry professionals were female and 5% minority (includes male and female minorities), and only 17 were minority women (Table 1). In 1996, the U.S. civilian labor force was 46% female and 15% minority (U.S. Census Bureau 1998). SAF's membership at the time of our study was 10% female and 2.3% minority (SAF 1995), the same as our proportion for women in urban forestry but less than half of our minority figure. The USFS, the nation's single largest employer of forestry professionals, had a workforce that was 39% female and 16% minority in 1996 (USDA 1997), much more diverse than we found and approaching the diversity of the U.S. labor force. However, many females and minorities in the Forest Service are in lower grade levels in nonprofessional, nonforestry, and nonleadership positions (Thomas and Mohai 1995; USDA 1997).

Table 1. Gender and minority status of postcard survey respondents, shown as percentages of total respondents who answered these questions (number of respondents in parentheses).

| | White | Hispanic | Asian | African-American | American Indian | Other | Multi-racial* | Total |
|--------------|--------------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|--------------------------------|
| Male | 85.0% (3,073) | 1.4% (52) | 0.4% (16) | 0.4% (15) | 0.4% (14) | 0.5% (18) | 1.6% (59) | 89.8% (3,247) |
| Female | 9.7% (351) | 0.2% (6) | 0.1% (3) | 0.03% (1) | 0.03% (1) | 0% (0) | 0.2% (6) | 10.2% (368) |
| Total | 94.7% (3,424) | 1.6% (58) | 0.5% (19) | 0.4% (16) | 0.4% (15) | 0.5% (18) | 1.8% (65) | 100% (3,615) |

*Multiracial indicates respondents who checked more than one race/ethnicity category.

When postcard responses are viewed by region (Figure 1), diversity was greatest in the West, with 12.1% females and 9.9% minorities, followed closely by the Rockies/Intermountain region. The Southeast also had a high female percentage but a lower proportion of minorities. The Northeast was least diverse at 7.3% females and 2.3% minorities. Minorities were under-represented (present in the urban forestry profession at a lower rate than in the population) in all regions. Minority under-representation was most pronounced in the Northeast (10.3% of expected) and Southeast (14.1%) and was least pronounced in the Rockies/Intermountain region (30.7% of expected). Though the Territories (Puerto Rico, Guam, etc.) had the highest proportion of females and minorities, they represented only 18 respondents. The regions used here generally follow USDA Forest Service regional boundaries with some modifications.

Hispanics were the most prevalent minority group in urban forestry (other than the multiracial group), making up 1.6% of our respondents (Table 1). We had 80 Hispanic respondents, with 58 checking only the Hispanic race/ethnicity category. In comparison, the National Arborist Association estimates that Hispanics comprise 75% of the workforce in many tree care companies (ISA 2001). Hispanics comprise 9.8% of the U.S. labor force (U.S. Census Bureau 1998) but only 0.4% of SAF membership (SAF 1995) and 6% of USFS employees (USDA 1997). Forty-four percent of the Hispanics in our study were from California, though this represents only 35 persons, or 6%, of the California respondents. Other than the Territories, where 83.3% of respondents were Hispanic, the West and Rockies/Intermountain regions had comparatively high proportions of Hispanics at 4% to 4.5% (Figure 1). Hispanic proportions in the rest of the country were much lower, and were lowest in the Northeast at 0.5%. It might be expected that numbers of Hispanics in urban forestry

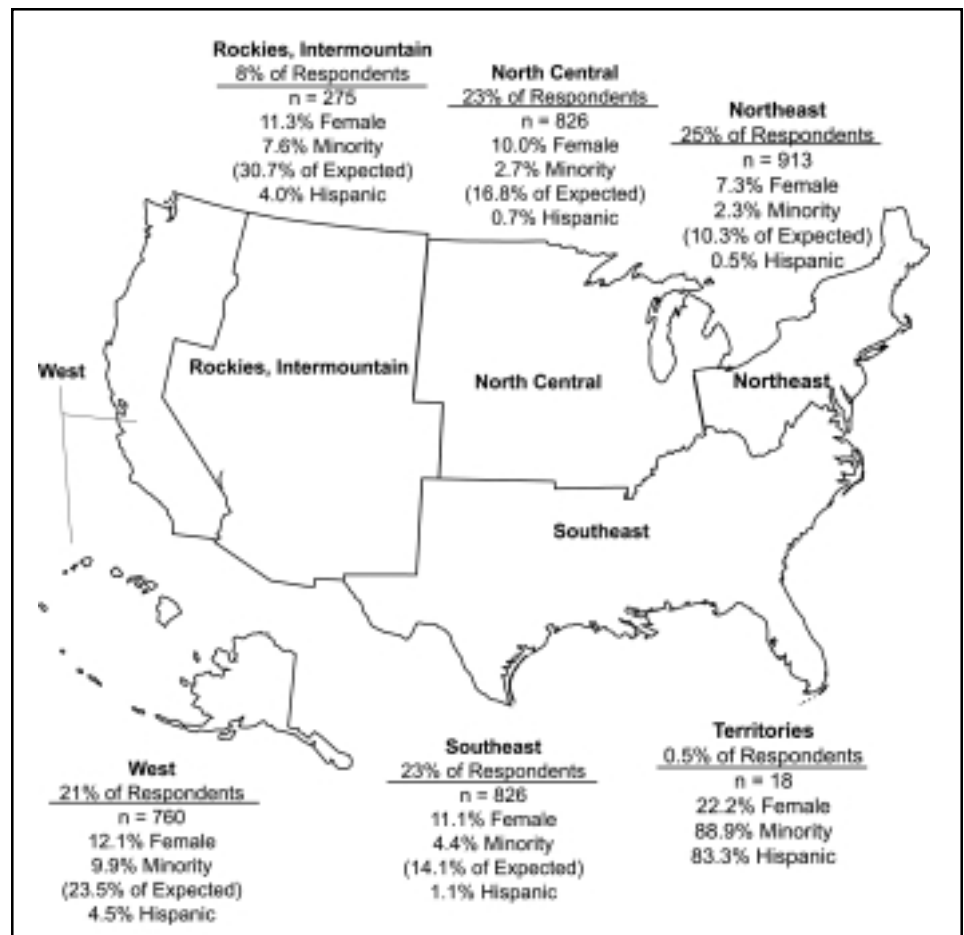


Figure 1. Regional distribution of postcard survey responses. Percentage of total responses is underlined, followed by the total number of responses for that region (*n*), and the female, minority (including Hispanic), and Hispanic response percentages within the region. In parentheses is the minority response rate as a percentage of the proportion of minority population for that region in 1996 (50% would mean our minority response rate was half the proportion of minorities in the region). Territories include Puerto Rico, American Samoa, Guam, U.S. Virgin Islands, and all other U.S. possessions, though we only received responses from Puerto Rico.

will slowly increase, especially in the West, since Hispanics are projected to make up 25% of U.S. population by the year 2050 and most Hispanic population growth will be in the West (U.S. Census Bureau 1998). The USDA Forest Service sees Hispanics as an important group in the tree care industry and has started a Hispanic Tree Worker Initiative (ISA 2001).

African-Americans were the most under-represented racial/ethnic group in urban forestry: Only 0.4% of the postcard respondents indicated they were African-American, compared to 10.8% in the U.S. labor force (U.S. Census Bureau 1998). Asians comprised 0.5% of our respondents, compared to 3.7% of the labor force, and American Indi-

ans comprised 0.4% of our respondents and 0.6% of the labor force (in 1990) (U.S. Census Bureau 1998).

Prevalence of females and minorities varied little between ISA and SAF respondents but was quite different for state/volunteer coordinators. Nine percent of ISA and 10% of SAF respondents were female, and 5% of ISA and 6% of SAF respondents were minorities. In contrast, 40% of state/volunteer coordinators were female, and only 3% ($n = 2$) were minorities. State/volunteer coordinators are persons hired by state forestry agencies or affiliated groups and funded by state and/or federal funds to coordinate state urban forestry and volunteer-based urban tree programs. This state government connection may partly explain the high female percentage for state/volunteer coordinators. Affirmative action programs have been quite effective at increasing the hiring of women and minorities in the public sector (Naff 1994). The low proportion of minorities in coordinator positions is difficult to explain, though most would be required to have a college degree, and only three minority students received urban forestry bachelor's degrees between 1988 and 1997. However, 103 minorities received general forestry B.S. degrees in 1996 (FAEIS 1999b), so minority graduates presumably are available.

Age, Experience, and Income

Women were younger and had less time in the profession than their white male counterparts, with minorities intermediate in age and time in the profession. White males averaged 46 years old, minorities 44 years, females 41 years, and female minorities 42 years. Time in the profession averaged 19 years for white males, 16 years for minorities, 11 years for females, and 13 years for female minorities.

Figure 2 shows the proportion of respondents in eight income classes by education level. Though no mean or median income can be reasonably calculated (income data were collected in categories because people often are reluctant to reveal exact income), some interesting trends are evident. Peak incomes were fairly similar. White male annual income peaked at US\$35,000–50,000 with at least a bachelor's degree (BS/BA) and \$25,000–35,000 without. Female income peaked at \$25,000–35,000 with or without a BS/BA. Minorities with or without a BS/BA showed two income peaks at \$25,000–35,000 and \$50,000–75,000. Compared to white males, there was a considerably higher proportion of minorities and lower proportion of females in the higher income categories (above \$50,000 per year). Regardless of education level,

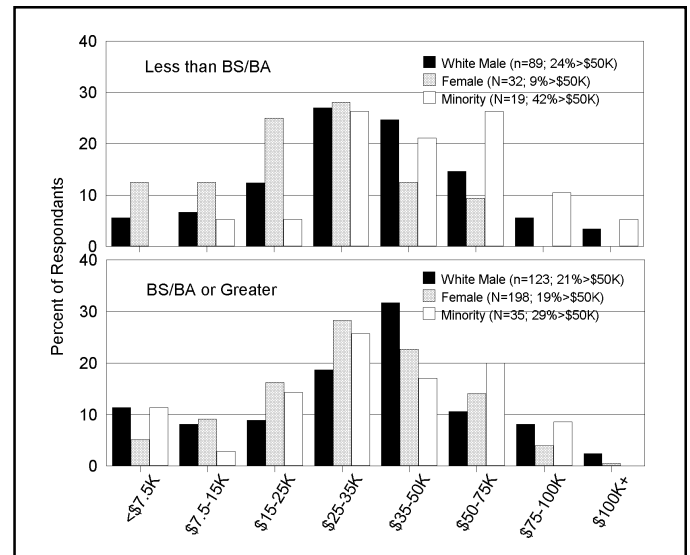


Figure 2. Effects of education (top—less than a bachelor's degree; bottom—bachelor's degree or greater) on income of white males, females, and minorities.

33.3% of minorities earned more than \$50,000 per year, compared to 22.2% of white males and 17.4% of females.

Increased education within a group did not necessarily increase the proportion of those making higher income. In fact, minorities and white males with at least a BS/BA actually appear to make less money than those without a BS/BA, at least by one measure—the proportion of those making more than \$50,000 per year. Forty-two percent of minorities without a bachelor's degree made greater than \$50,000 annually, compared to only 29% of those with at least a BS/BA (Figure 2). This pattern holds with white males as well, but the difference is less pronounced. On the other hand, females appeared to make more money with at least a BS/BA than without, and no female without a BS/BA made more than \$75,000 a year.

The higher proportion of minorities in the high-income classes in this study may be related to their geographic location. Of the 18 minorities with annual income greater than \$50,000, 15 were from the West and 12 from California. Mean annual pay in California is sixth highest in the nation (U.S. Census Bureau 1998). The inverse relationship of education level and income shown here for minorities and white males is difficult to explain. More than half (55%) of the white males and minorities with less than a BS/BA are self-employed and most are arborists, while about two-thirds of those with at least a BS/BA are in middle or upper management working for someone else.

Our finding of fewer women in higher income categories in urban forestry mirrors the findings of others and might be due partly to their younger average age and lower years of experience (mentioned previously). According to the U.S. Census Bureau (1998), white males in the U.S. labor force in 1997 had 38% higher income than females. Cripe (1991) also reported that women in the NPS had lower income than men and less time in their positions, and Teeter et al. (1990) reported that female foresters in the South were younger than male foresters.

Relative youth and lack of time in the profession for women in urban forestry also was reflected in professional advancement. For respondents who were not self-employed, women were concentrated in mid-level and middle management positions, while white males were concentrated in middle and upper management. Minorities were heavily concentrated (more than 60%) in middle management, perhaps explaining their comparatively high salaries noted earlier. White males were more than one and a half times more likely to be in upper management positions than females or minorities. White males also were more likely to be self-employed (42%) than females (23%) or minorities (31%). Less advancement of women in urban forestry professions could simply be a matter of having had less time to advance, but it could also be due to having fewer advancement opportunities. Teeter et al. (1990) found that 71% of female foresters in the South did not agree that they had the same opportunities in their professions as men.

Work Sector and Primary Employment

Women and minorities also tended to concentrate in different work sectors than white males. Most women and minority women (53%) were in public-sector positions, while most white men (55%) were in private for-profit positions (only 41% of white males were in public-sector positions) (Table 2). Teeter et al. (1990) also found that female foresters were more likely to work in the public-sector than the private sector. Minorities in our study, however, were fairly equally represented in public and private for-profit positions. Though only 13% of women were in private nonprofit positions, this proportion was considerably higher than that for minorities or white males. Note that while these proportions are informative, white males still greatly outnumbered women and minorities at all levels and in all sectors.

Differences in employment sectors can be seen in more detail by looking at respondents' primary employment from the in-depth survey (Table 3). White males were most commonly found in arboriculture, while women were most often in municipal forestry, followed closely by arboriculture. The proportion of women in municipal forestry (21%) was more than twice that for white males. Women also were found in much greater proportion than white males in horticulture, landscape architecture, state forestry, and research/education. Numbers of minorities in any employment category were small, but nearly one-third were in arboriculture, followed by municipal forestry (14%) and landscape maintenance (11%). Though terms like "arboriculture" and "municipal forestry" were not defined for respondents, Harris et al. (1999) define arboriculture as "the science and art of caring for trees, shrubs, and other woody plants in landscape settings" and define urban forestry as "management of naturally occurring and planted trees in urban areas." Mu-

Table 2. Gender and minority status of postcard survey respondents by work sector, shown as percentages of respondents within a gender or minority category who answered these questions (number of respondents in parentheses). Some respondents are included in both the female and minority columns. Minority includes anyone who checked any racial/ethnic category or categories other than white, even if they also checked white.

| | White male | Female | Minority | Female Minority |
|--------------------|---------------------|-------------------|-------------------|------------------|
| Public | 40.8% (1,237) | 52.6% (194) | 49.2% (93) | 52.9% (9) |
| Private nonprofit | 4.1% (124) | 13.3% (49) | 3.7% (7) | 5.9% (1) |
| Private for-profit | 55.1% (1,668) | 34.1% (126) | 47.1% (89) | 41.2% (7) |
| Total | 100% (3,029) | 100% (369) | 100% (189) | 100% (17) |

nicipal forestry might be thought of, therefore, as a subset of urban forestry dealing with the management of a town's or city's trees.

The idea of women being attracted to, or at least found in, different work roles or occupation types than men persists in urban forestry and in broader society and may affect whether women enter or remain in urban forestry professions. Griffin (1993) found that 86% of the female natural resource professionals they surveyed would characterize their work as traditionally being done by males. Kennedy (1982) also found that some forestry-related occupations were considered to be traditionally male (e.g., timber management), while others were thought to be better suited to women (e.g., recreation). In society overall, women tend to be disproportionately found in professions with a public service or care-giving element. For example, the top five professional specialties for women in the United States in 1997 were

Table 3. Primary employment of in-depth survey respondents shown as percentages within a gender or minority category (number of respondents in parentheses).

| | White male (n = 244) | Female (N = 255) | Minority (N = 71) |
|------------------------|-------------------------|---------------------|----------------------|
| Arboriculture | 43% (104) | 18% (46) | 31% (22) |
| Municipal forestry | 10% (25) | 21% (53) | 14% (10) |
| Consulting | 9% (22) | 10% (25) | 7% (5) |
| Utility forestry | 9% (21) | 7% (18) | 7% (5) |
| Landscape maintenance | 8% (20) | 7% (17) | 11% (8) |
| State forestry | 5% (11) | 8% (21) | 3% (2) |
| Research/education | 4% (9) | 6% (15) | 7% (5) |
| Park management | 3% (8) | 4% (9) | 6% (4) |
| Retired | 3% (8) | 0% (0) | 3% (2) |
| Horticulture | 2% (5) | 7% (19) | 1% (1) |
| Landscape architecture | 2% (4) | 5% (14) | 8% (6) |
| Extension | 1% (2) | 4% (9) | 0% (0) |
| Nursery | 1% (3) | 2% (4) | 0% (0) |
| Other | 1% (2) | 2% (5) | 1% (1) |

registered nurse, elementary school teacher, secondary school teacher, preschool/kindergarten teacher, and social worker, while men were more heavily concentrated in engineering and computer science (U.S. Census Bureau 1998).

Education

Female urban foresters had a higher level of formal education than white males and minorities, with 85% of females reporting at least a bachelor's degree, compared to 59% for white males and 62% for minorities and for female minorities. Only 5% of women had no college, compared to 13% for white males, 7% for minorities, and 8% for female minorities. There was little variation in college major and minor by gender or minority status. Most respondents (72% to 76%) had degrees in natural or biological sciences (e.g., forestry, pathology, horticulture). Landscape architecture was a major of 9% of women, 8% of minorities, and 15% ($N = 2$) of female minorities, as compared to 5% of white males. Natural science was the most frequently mentioned minor, followed by liberal arts and business.

Education level varied considerably between ISA and SAF members and state/volunteer coordinators. Of SAF respondents, 93% had at least a B.S. and 42% had an M.S. or Ph.D. This finding is in keeping with the SAF requirement that full members must have a bachelor's degree or higher. State/volunteer coordinators were similar, with 92% having at least a B.S. and 33% an M.S. (no Ph.D.'s). Most of these people are in state government positions that require a college degree. In contrast, 68% of ISA member respondents had college degrees and 21% had an M.S. or Ph.D. ISA does

not require a certain level of education for membership, though it has a strong education focus with its stated mission "To foster research and education that promotes the care and the benefits of trees." Within the ISA group, females had the highest college graduation rate (B.S. or higher) of 84%, compared to 56% for white males and for minorities.

Education and the Future of Urban Forestry

Education will help determine urban forestry's future direction. Women and minorities in college urban forestry programs represent future opportunities for diversifying urban forestry professions. However, it will take quite a few years, and possibly some changes in attitudes toward urban forestry, before these graduates start having a great effect on the profession's demographics. There were only 45 urban forestry B.S. graduates in 1997 in the U.S., including only 11 women and one minority (FAEIS 1999b). These low numbers may reflect the forestry profession's lack of attention to urban forestry and urban forestry education. A recent issue of the *Journal of Forestry* focusing on forestry education (SAF 1999) had six articles on various education topics, none of which mentioned urban forestry education. Of course, many urban foresters may get their education through traditional forestry curricula. In 1997, 307 women (21% of total forestry graduates) and 127 minorities (9% of total) received forestry B.S. degrees (FAEIS 1999b), considerably greater than the 10% women and 5% minorities we found in urban forestry professions. It is also likely that quite a few of today's urban forestry professionals, especially in the ISA ranks, are not entering the profession through graduation from a professional forestry school.

A possibly negative note for urban forestry is that women who enter urban forestry degree programs are leaving prior to graduation at a higher rate than men. In 1997, women made up 35% of urban forestry enrollees but only 24% of graduates (FAEIS 1999a, 1999b). Numbers of male enrollees have remained fairly steady over the last several years, while the number of male graduates has risen. Female enrollment has increased considerably over the last few years, while numbers of graduates have remained low. Perhaps these programs appear attractive to women at first but lose their appeal later, while having the opposite effect on men. Girls and women have been shown to be less-oriented than boys and men toward participation in science-oriented education and careers for a number of reasons (AAUW 1998), though Leslie et al. (1998) feel that this predisposition is largely determined prior to women entering college.

CONCLUSIONS

Who are these women and minority urban foresters? We found that a typical woman in urban forestry is younger, better educated, less likely to make more than \$50,000 per year, and has been on the job a shorter time than her white male peers. She holds a mid-level or middle management position in the public or private nonprofit sector in municipal forestry, horticulture, landscape architecture, state forestry, or research/education. A typical minority urban forestry professional is slightly older than the typical woman and is less educated, is more likely to make more than \$50,000 per year than women or white males, and holds a middle management position in the private or public sector in arboriculture, municipal forestry, or landscape maintenance.

Women and minorities are under-represented in urban forestry positions compared to national labor and Forest Service statistics. Education and demographic trends indicate female and minority representation may be increasing, but longitudinal data are needed to test for this. Salary equity results were mixed. While a greater proportion of minorities made high salaries than white males, women were less likely to make high salaries than their white male peers despite higher average education levels. This could be due to women having fewer years in their professions and lower average job status, but it could also indicate the existence of a "glass ceiling." Again, longitudinal data are needed to test for these influences.

These profiles help us know who these people are now, but they will change in the future as women, minorities, and urban forestry change. Does it matter whether proportions of women and minorities in urban forestry increase? Certainly urban forestry can benefit from the diverse skills and outlooks of women and minorities and from having a larger pool of potential employees in a tight labor market. In addition, it seems that urban forestry professionals might better represent their diverse clientele if they, as a group, were similarly diverse. However, with the current low levels of women and minorities in the profession, the benefits of their participation are not realized. Female and minority participation in urban forestry professions will only increase substantially when these professions became attractive to them and appreciative of their skills and abilities. Knowing who they are is the first step.

LITERATURE CITED

- American Association of University Women. 1998. *Gender Gaps: Where Schools Still Fail Our Children*. John Wiley and Sons, Washington, DC.
- Chesney, C.E. 1981. Should racial minorities consider careers in natural resources? *J. Non-White Conc.* 9:146-153.
- Cripe, R.G. 1991. Workforce profile of women who work in the National Park Service. *Women Nat. Resour.* 13:20-23.
- Dillman, D.A. 1999. *Mail and Internet Surveys: The Tailored Design Method*. John Wiley and Sons, New York, NY.
- FAEIS. 1999a. Fall 1997 Enrollment in Agriculture, Natural Resources, and Forestry. Food and Agricultural Education Information System, Texas A&M University, College Station, TX.
- FAEIS. 1999b. Fall 1996/1997 Degrees Awarded in Agriculture, Natural Resources, and Forestry. Food and Agricultural Education Information System, Texas A&M University, College Station, TX.
- Griffin, K.A. 1993. Survey of Women in Natural Resources Subscribers: Part One. *Women Nat. Resour.* 15:9-10.
- Harris, R.W., J.R. Clark, and N.P. Matheny. 1999. *Arboriculture: Integrated Management of Landscape Trees, Shrubs, and Vines*. Prentice-Hall, Upper Saddle River, NJ.
- Hildebrandt, R.E., D.W. Floyd, and K.M. Koslowsky. 1993. A review of urban forestry education in the 1990s. *J. For.* 91:40-42.
- International Society of Arboriculture. 2001. Hispanic tree worker initiative. *Arborist News* 10(4):50.
- Kennedy, J.J. 1982. Dealing with masculine/feminine gender labels in the natural resource professions, pp 84-91. In Stock, M., J.E. Force, and D. Ehrenreich (Eds.). *Women in Natural Resources: An International Perspective Conference Proceedings*. University of Idaho, Moscow, ID.
- Leatherberry, E.C., and J.D. Wellman. 1988. Black high school students' images of forestry as a profession. *J. Negro Educ.* 57:208-219.
- Leslie, L.L., G.T. McClure, and R.L. Oaxaca. 1998. Women and minorities in science and engineering: A life sequence analysis. *J. Higher Educ.* 69(3):239-276.
- Naff, K.C. 1994. Through the glass ceiling: Prospects for the advancement of women in federal civil service. *Public Admin. Rev.* 54:507-514.
- Otero, R., and G.N. Brown. 1996. Increasing minority participation in forestry and natural resources. *J. For.* 94:4-7.
- Payne, B.R., and D.R. Theoe. 1971. Black foresters needed: A professional concern. *J. For.* 69:295-298.
- Robinson, J.P., R. Athanasiou, and K.B. Head. 1969. *Measures of Occupational Attitudes and Occupational Characteristics*. Institute for Social Research, University of Michigan, Ann Arbor, MI.
- Society of American Foresters. 1995. Report on demographics of organization. Personal communication. Society of American Foresters, Bethesda, MD.
- Society of American Foresters. 1999. September 1999 issue of *Journal of Forestry*. *J. For.* 97(9).
- Teeter, L.D., L. Thara Bhai, and J.C. Bliss. 1990. Perspectives of women foresters in the South. *Women Nat. Resour.* 12:20-23.

- Thomas, J.C., and P. Mohai. 1995. Racial, gender, and professional diversification in the Forest Service from 1983 to 1992. *Policy Stud. J.* 23:296–309.
- U.S. Census Bureau. 1998. *Statistical Abstract of the United States: 1998*. U.S. Census Bureau, Washington, DC.
- USDA Civil Rights Action Team. 1997. *Civil Rights at the USDA: A Report by the Civil Rights Action Team*. United States Department of Agriculture, Washington, DC.
- Wellman, J.D. 1987. Images of a profession: Forestry is something of a mystery to college bound students. *J. For.* 85:18–19.
- Wright, P.A., and D.W. Floyd. 1990. Some pertinent gender and racial differences at Ohio State University. *Women Nat. Resour.* 12:31–34.

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Résumé. Dans une étude nationale, nous avons découvert que 10% des forestiers urbains professionnels étaient des femmes et 5% étaient issus de minorités culturelles. Les femmes étaient généralement plus jeunes, plus instruites, consacraient moins de temps à leur profession que les hommes blancs, et détenaient plus de postes dans le secteur public et les organismes à buts non lucratifs. Ceux des minorités étaient plus âgés et moins éduqués que les femmes et les hommes blancs. Comparé aux hommes blancs, il y avait une plus grande proportion de personnes des minorités et une plus faible proportion de femmes dans les échelons supérieurs de revenus (plus de 50000\$ par an). Une discussion est faite sur la démographie de cette profession ainsi que sur les raisons et les implications d'un manque de diversité dans cette profession.

Zusammenfassung. In einer bundesweiten Studie fanden wir heraus, dass 10% der professionellen Forstleute Frauen und 5 % Minderheiten sind. Frauen sind allgemein jünger, besser ausgebildet und hatten weniger Zeit im Beruf als die weißen Männer und sie arbeiteten häufig auf unbezahlten öffentlichen und privaten Stellen. Die Minderheiten waren älter und schlechter ausgebildet als Frauen oder weiße Männer. Verglichen mit weißen Männern war ein deutlich höherer Anteil von Minderheiten und weniger Frauen in höheren Einkommenspositionen. Wir beschreiben hier die demographische Verteilung in diesem Berufsfeld und Implikationen für den relativen Mangel an Diversität in diesem Feld.

Resumen. En un estudio a lo amplio del país encontramos que el 10% de los profesionales dasónomos urbanos fueron mujeres y 5% minorías. Las mujeres generalmente fueron más jóvenes, mejor formadas, y tienen menos tiempo en su profesión que los hombres, y tienen con más frecuencia posiciones en instituciones públicas o en privadas sin ánimo de lucro. Las minorías fueron de más edad y menos preparadas que las mujeres u hombres blancos. Comparados con los hombres blancos hubo considerablemente mayor proporción de minorías y menor proporción de mujeres en las categorías de altos ingresos (arriba de \$50K por año). Describimos la demografía de la profesión y discutimos las razones e implicaciones de un vacío relativo de diversidad en esta profesión.