



Approaches Within the 50 United States to Meeting Federal Requirements for Urban and Community Forestry Assistance Programs

Richard J. Hauer and Gary R. Johnson

Abstract. Urban and Community Forestry (U&CF) program capacity within the 50 United States was derived through four indicator areas that included the state U&CF program coordinator, volunteer coordination, state U&CF council, and strategic plan. The agency and administrative unit where the program resides, year of program initiation, staffing levels and expertise area, additional non-U&CF responsibilities of staff, and coordination of U&CF within a state were further studied. Each state had an U&CF program coordinator (most were full-time), practiced varying volunteer coordination approaches, had a state U&CF council, and had a regularly updated strategic plan. Most states had additional regional U&CF staff with the majority of their time devoted to U&CF activities with a mean 4.2 (median, 3.2) full-time equivalents of total U&CF staff in a state. Occasionally, non-U&CF duties were conducted by U&CF staff with fire control, forest stewardship, special projects, and forest health most commonly given as other areas conducted by U&CF staff. Most state U&CF programs used a variety of approaches to support volunteer-based U&CF efforts in a state. All states now have a U&CF coordinator with 95% of their duties associated with U&CF activities. State U&CF councils vary in their membership and approaches for coordination of U&CF within a state.

Key Words. State Urban and Community Forestry programs; urban and community forestry; urban forestry; urban forestry program capacity.

State Urban and Community Forestry (U&CF) programs were created with an important goal to increase local urban forestry activities and improve the urban forest at local levels (Casey and Miller 1988; USDA-FS 2002; USDA-FS U&CF 2004). The U.S. Department of Agriculture Forest Service (USFS) is the lead federal agency for the national U&CF assistance program in the United States and supports state U&CF programs through financial and technical assistance (USDA-FS 2002). The need for federal and state U&CF programs and collaboration arose from the belief that the general health and structure of some urban forests were declining and urban tree populations are important because they improve quality of life and enhance the value of urban landscapes (Biles and Deneke 1982). A goal to encourage tree planting and develop an ability or capacity within states and local government to undertake U&CF programs and management of urban tree populations was developed to reverse that trend (USDA-FS 2002). Thus, state and federal U&CF programs use their existing capacity to increase the ability or capacity to develop and expand local urban forestry programs and activities and, ideally, a sustainable local urban forest results (Clark et al. 1997; USDA-FS 2002; Dwyer et al. 2003; Elmendorf et al. 2003; Hauer 2006; Hauer and Johnson 2008; Hauer et al. 2008).

The Federal Farm Bill of 1990 (P.L. 101–513) substantially increased the federal role and U&CF funding for the Forest Service (Unsoeld 1978; Biles and Deneke 1982; Deneke 1983, 1992). Funding to state U&CF programs also increased greatly (Hauer and Johnson 2008). As a condition to receive funding, each state had to meet and maintain the following four requirements:

- 1) Have an urban and community forestry program coordinator;
- 2) Implement volunteer/partnership coordination;
- 3) Create an urban and community forestry council; and
- 4) Develop a state program strategic plan (5-year plan).

These four areas are believed to be important key components that state U&CF programs need as a basis for an effective U&CF program. The USFS national and regional offices provide U&CF program leadership through coordination and oversight of state programs with meeting the four key federal funding requirements. Program delivery occurs primarily at the state level through cooperation with state foresters and key partners. In some cases, involvement and granting goes directly to the local level through legislative earmarks.

The state U&CF coordinator provides leadership for the state program. Volunteer coordination is used to leverage support and obtain local citizen involvement. State and local partnerships contribute to a statewide linkage of diverse groups and programs (Hortscience & Aslan Group 2004). The state U&CF council furthers and plausibly serves as a mechanism to coordinate diverse groups and interests. State U&CF councils also advise the state forester on program direction and priorities. Other external partners, particularly community-based organizations and local governments, play an important role in expanding the public/private partnerships that promote understanding and management of urban and community forests and related natural resources. Finally, a state U&CF program strategic plan provides direction to accomplish programmatic goals and objectives. Updating is required at least once every 5 years. This article addresses state approaches taken with meeting the four federal requirements of state U&CF programs. The intent of this article is to describe these state approaches.

METHODS

This investigation used data supplied by state U&CF program coordinators in the 50 United States through a self-administered questionnaire for program year 2002. Questions were structured

according to USFS requirements for state U&CF programs as a condition of receiving federal funding (Hauer 2005). These four areas include the state U&CF program coordinator, volunteer/partnership coordination, state U&CF council, and strategic plan. State U&CF council questions focused on the activity of the council, council members and how appointed, administrative support, recommendations made by the council to state government, coordination of U&CF by the council within a state, and overall functional support toward achieving nine USFS goals for state councils. Questions pertaining to the state U&CF coordinator and volunteer/partnership coordination included education background, years in the position, total years of experience, and turnover of positions. Also, responsibilities of volunteer/partnership staff were ascertained along with mechanisms taken to fulfill this role. Information on strategic plan development and use was also ascertained. In addition, the administrative unit where the program resided, the year the program was initiated, staffing levels and expertise areas, additional non-U&CF responsibilities of staff, program support given by state government and the agency that houses the state program, and coordination of U&CF within a state were determined.

In brief, the questionnaire was sent to the entire population of 50 state U&CF coordinators using a mailing list maintained by the USFS; the questionnaire and compiled descriptive summary statistics are found in Hauer (2005). Delivery of the questionnaire used elements of the Tailored Design Method and seven total contacts, which resulted in an 84% response rate with 41 useable questionnaires (Dillman 2000). Data were entered in Microsoft Access 2002 with both Microsoft Excel 2002 (Microsoft, Redmond, WA) and SPSS version 11.5 (SPSS Inc., Chicago, IL) used to compile descriptive statistics. No nonresponse error was detected; thus, findings from this study are reflective of the entire population of 50 state U&CF programs (Hauer 2005; Hauer and Johnson 2008). Further, non-item response error was not a concern with 95% to 100% response to most questions (the isolated exceptions were noted in the results). A complete description of the questionnaire delivery is presented elsewhere (Hauer 2005; Hauer and Johnson 2008).

RESULTS

Program Background

State U&CF programs reside in a variety of agencies/entities within a state. From the questionnaire data and data compiled from an agency web site search of nonresponding states, 34% of state programs were housed within a Department of Natural Resources and/or Conservation. In addition, 10% have their U&CF program within an agency that includes natural resources within the agency title. In 18% of states, the U&CF program was housed within a Department of Forestry or Forestry Commission, within the State Agriculture Department in 12% of states, within a university system in 10% of states, the Department of Environment in 10% of states, and State Land Department in 6% of states.

Respondents provided insight into factors limiting the state U&CF program. A majority 57.5% believed their state U&CF program was not given adequate attention by the state agency and this could pose problems with satisfying a requirement of the U&CF program. Compared with other forestry programs in the agency, 48.8% believed their agency gave fair support and 26.8% rated it as good. The three most common factors written as limiting the U&CF program were budget/funding from state

and federal government (17 states), staffing levels (13 states), and awareness or perception of importance of U&CF (nine states). Nearly 90% were optimistic about the long-term future of their U&CF program with 45.7% believing expansion and 42.9% indicating status quo will occur. Only 11.4% thought the program would either be eliminated or reduced in size with budgetary limitations given as a common reason for this response.

Coordination of U&CF among people and organizations involved in U&CF in the state appears promising. Exactly 50% of responding states reported a good and 32.5% indicated fair coordination among people and organizations involved in U&CF in the state. Only 17.5% suggested coordination was excellent and none thought coordination was either poor or not occurring within a state. States used a combination of informal and formal coordination methods with 78% using more than one. Informal (i.e., meetings, task forces, committees, conferences) and formal (i.e., state U&CF council, committee, or board) coordination mechanisms were used by 85.4% and 87.8% of states, respectively. A minority (19.5%) of states used memorandums of understanding (MOUs) for coordination and only one state indicated coordination occurred by directive from their state legislature. Formal mechanisms were the primary coordination method used by 63.6% of states with 27.3% using informal and 9.1% using MOUs. Non-item response was high for this question with only 53.7% of states responding.

State Urban and Community Forestry Council

The USFS requires an U&CF advisory council within a state to receive federal funds (Table 1). All states met this requirement and the council is active in 95% of states. Within states, 84.6% of state councils were formed between 1990 and 1992 and only three states (7.7%) initiated councils before the federal requirement resulting from the 1990 Farm Bill. Councils met a mean 4.6 times per year. States reported 45% of councils have incorporated as a 501(c)(3) nonprofit organizations and 56.1% of state councils have developed a strategic plan.

State councils can take the form of an executive level only organization, a general membership only organization, or may use both forms. Most states (71.8%) have both executive and general members, 20.5% have only general membership, and 7.7% have only executive level members. The general membership ranged from zero to 310 with a mean of 62.5 (median, 20) in a state council. The number of executive members were lower, ranging from zero to 40 within a state and a mean of 9.4 (median, 6.5) members. Of states with an executive committee, 57.1% elect the members, 20% appoint members, and 22.9% use both elections and appointments.

State councils rely greatly on administrative support from the state agency administering the U&CF program through the state coordinator in 85.4% of states. In 39% of states, significant support from other state employees within the agency is provided with the state coordinator still providing significant council support in 93.8% of these states. Organization administration through paid staff is not common with 17.1% of state U&CF councils using a paid executive director and 7.3% using paid administrative support. Less than 5% rely on volunteers or council members to undertake a significant role in council administration.

One role councils undertake is providing advice to the state legislature on issues affecting the state U&CF resource. However, few U&CF councils do such with 24.4% either rarely

Table 1. Indicators of state urban and community councils in the 50 United States.

State council questions	Response statistics		
	Sample size (no.)	No. yes (%)	
Does your state have a state U&CF council or other similar organization?	41	41 (100.0)	
Is the state U&CF council active?	40	38 (95.0)	
Is the council or similar organization a 501(c)(3) nonprofit organization?	40	18 (45.0)	
Does the State U&CF council have its own strategic plan?	41	23 (56.1)	
What best describes how the council was formed? (check one)	40		
Enacted by state legislation		2 (5.0)	
Formed at the request of the lead agency for U&CF		7 (17.5)	
Developed in response to a federal requirement to have a state council to qualify for federal U&CF financial support		31 (77.5)	
Other		0 (0.0)	
How are the executive committee/board members selected?	35		
Elected		20 (57.1)	
Appointed		7 (20.0)	
Both		8 (22.9)	
How well do you think the council functions <i>overall</i> in the role of coordination of U&CF programs and activities in your state?	41		
Excellent		4 (9.8)	
Good		20 (48.8)	
Fair		11 (26.8)	
Poor		4 (9.8)	
No effect		2 (4.9)	
To what degree does the state U&CF council develop recommendations to the state legislature on issues affecting urban forests in your state?	41		
Annually develop recommendations		2 (4.9)	
Biannually develop recommendations		0 (0.0)	
Recommendations provided as needed		13 (31.7)	
Rarely make recommendations		10 (24.4)	
Never make recommendations		16 (39.0)	
Which, if any, of the following people provide significant administrative support for the State U&CF council? (check all that apply)	41		
Paid executive director		7 (17.1)	
Paid administrative assistant		3 (7.3)	
State U&CF coordinator		35 (85.4)	
Other state-employed staff		16 (39.0)	
Other		6 (14.6)	

State council questions	Response statistics		
	Sample size (no.)	Mean (median)	Range
Approximately how many times per year does the council meet?	40	4.6 (4)	1–12
What year was the state U&CF council formed?	39	1991 (1991)	74–97
How many members are on the state U&CF council?			
General members	39	62.5 (20)	0–310
Executive level members	40	9.4 (6.5)	0–40

U&CF = Urban and Community Forestry.

and 39% never making recommendations. Nearly one-third of state councils provide recommendations as needed and 4.9% of state councils form annual recommendations. The low percentage providing annual advice to the legislature is likely a reflection that only 5% of state councils were enacted by state legislature and 17.5% were formed at the request of the lead agency for U&CF. In contrast, 77.5% of councils were formed in response to the federal requirement for a council and presumably provide advice directly to the lead U&CF agency, which provides advice to the state legislature.

Council representatives came from constituent groups within government, industry, nongovernmental organizations, and vol-

unteers (data not shown). Officials from either the governor's office or state legislatures were rarely members of state councils. None served on an executive committee and only 8.3% of states reported the state legislature and 2.8% reported the governor's office were general members. State forestry agencies, municipal government, tree care companies, nonprofit organizations, universities, and citizen members were most likely to be part of a state council as general members in 60% or more of states. State agricultural and transportation agencies, USDA Forest Service, utility foresters, arboricultural trade organizations, the landscape industry, and the business community were also members but less frequently in 25% to 50% of states.

The USFS developed nine areas in which it believes state councils would help foster U&CF development in a state (Table 2). These areas involve advisory and program evaluation roles, developing partnerships among groups interested in U&CF, facilitating networking and technology transfer, promoting outreach equally to all communities reflective of cultural diversity, and other activities that advance U&CF development. Respondents provided their beliefs of how councils foster U&CF development in these nine areas with rankings of excellent, good, fair, poor, or no effect. Councils were best at assisting the state forester with development of the state U&CF strategic plan with 73.2% of councils rated as good or excellent. This was reflected in that in 34.1% of states, the council led development of the strategic plan and 48.4% of state councils had a moderate to major role in plan development. In contrast, councils were least effective (overall rated as fair) at promoting outreach to all communities that assures program implementation reflective of cultural diversity. Nationally, state councils were intermediate, rated between fair and good, at advising the state forester on program emphasis and priorities, on the effectiveness of statewide and local U&CF implementation efforts, and with building partnerships. State councils were rated as slightly above fair with developing networking and technology transfer along with developing cost-share proposal criteria. Approximately 75% of the respondents indicated that state councils were fair (26.8%) or good (48.8%) with the overall coordination of U&CF programs and activities within a state.

State Urban and Community Forestry Program Strategic Plan

The USFS requires state U&CF programs to develop and regularly update a strategic plan (or plan that provides program

direction) at least once every 5 years (Table 3). All states had a strategic plan that was recently updated within the past 3 years and these were historically updated on average every 5 years. They were used to guide U&CF program direction yearly or more frequently (constantly, daily, monthly, quarterly) by 85.4% of states. The remaining 14.6% responded they rarely use the strategic plan. In 82.5% of states, the state U&CF council either gave moderate or major input to the agency or the council solely developed the plan. The vast majority of plans (90.2%) were developed as documents separate from state forestry agency plans.

Urban and Community Forestry Program Coordinator

Currently, all responding states have a U&CF coordinator (Table 4). Seventy-eight percent of coordinators were assigned full-time to the position with the remaining 22% assigned from 25% to 95% of full-time. Overall, a mean 95.4% full-time equivalent (FTE) level was reported nationally. Only 26.8% of states believe they would have established a full-time U&CF coordinator if federal assistance to states had not been expanded in 1991 and all of these states had a full-time coordinator before 1990. Of the 73.2% of states that responded a full-time U&CF coordinator would not exist, they indicated the U&CF coordinator would exist at a mean 27.1% FTE level.

Most state U&CF coordinators have advanced training and experience. The majority of state U&CF coordinators have a Bachelor's (52.5%) or Master's (37.5%) degree with the remaining 10% having college experience that was not defined by a level of advancement by respondents. Most degrees were in forestry, natural resources, or a related field. Total experience of U&CF coordinators ranged from 1 to 31 years with a mean of

Table 2. Ability of state urban and community forestry councils to address USDA-Forest Service prescribed responsibility areas of councils within the United States.

State U&CF council responsibility areas	Frequency reported by states						Ranking index ²
	Excellent (4)	Good (3)	Fair (2)	Poor (1)	No Affect (0)	Unsure	
Assist the state forester in the development of the state's U&CF program strategic plan	14	16	7	3	1	0	2.93
Advise the state forester on U&CF program emphasis and priorities	12	13	11	3	2	0	2.68
Assist in building partnerships among all groups interested in U&CF program	8	18	10	3	1	0	2.68
Provide feedback to the state forester and forest service on the effectiveness of statewide and local U&CF implementation efforts	6	17	13	2	2	1	2.53
Assist in the development and implementation of other activities that advance urban and community forestry	4	16	17	2	1	0	2.45
Foster U&CF environmental education opportunities	9	13	10	7	2	0	2.38
Facilitate U&CF networking and technology transfer	6	16	6	7	5	0	2.25
Work with the state forester in the development of criteria for the evaluation of recommendations for cost-share proposals	7	13	7	4	7	2	2.21
Promote outreach into all communities and assure program implementation that reflects cultural diversity	4	11	12	10	3	0	2.05
Overall	70	132	93	41	24	3	2.46

²Ranking index derived from the proportional frequency of assistance.

U&CF = Urban and Community Forestry.

Table 3. Indicators of state urban and community strategic plans in the 50 United States.

Strategic plan questions	Response statistics	
	Sample size (no.)	No. yes (%)
What best describes how the strategic plan was developed? (check one)	41	
Solely by your agency with no external input or review		1 (2.4)
With limited input/review from partners outside the agency		5 (12.2)
With moderate input/review from partners outside the agency		11 (26.8)
With major input/review from partners outside the agency		9 (21.6)
The state urban forest council led development of the strategic plan		14 (34.1)
Other (describe: developed by the agency and approved by advisory committee.		1 (2.4)
How often is the strategic plan used to guide progress toward plan objectives/goals? (check one)	41	
Monthly		8 (19.5)
Yearly		22 (53.7)
Rarely		6 (14.6)
Other (describe: daily, constantly, all the time, quarterly)		5 (12.2)
What describes how the State U&CF program strategic plan was developed? (check all that apply)	41	
U&CF actions incorporated into the state's statewide forest plan		5 (12.2)
A separate U&CF strategic plan was developed		37 (90.2)
U&CF actions items incorporated in an existing document used for statewide forest planning purposes		3 (7.3)

Strategic plan questions	Response statistics		
	Sample size (no.)	Mean (median)	Range
When was the strategic plan last updated? (year)	40	2001 (2003)	98–03
On average, how often is the strategic plan updated? (year)	40	5 (5)	1–6

U&CF = Urban and Community Forestry.

11.9 years of practical U&CF experience. The coordinator has also been in their current job a mean 6 years. Finally, over the past 10 years, states have employed a mean of 2.4 people in the U&CF coordinator position.

Volunteer and Partnership Coordination

Volunteer and partnership coordination is required of states if USFS funding is granted. However, flexibility is given to states

on how best to reach this condition (Table 5). Respondents indicated 73.2% of states have one or more staff serving the role of volunteer/partnership coordinator. Of the remaining states who specified they did not have a dedicated volunteer/partnership coordinator position, regional U&CF staff or the state coordinator still performs this role as part of their duties within 78.3% of the states. The remaining states contracted with an outside source for volunteer/partnership coordination.

Table 4. Indicators of the state urban and community coordinator position in the 50 United States.

State U&CF coordinator questions	Response statistics	
	Sample size (no.)	No. yes (%)
Does your agency employ an urban forester or similar specialist who coordinates the state U&CF program?	41	41 (100)
Do you think your state would have established a <i>full-time</i> U&CF coordinator today if federal U&CF assistance to states was not expanded in 1991?	41	11 (26.8)
What is the educational background of the state U&CF program coordinator?	40	
Bachelor's		21 (52.5)
Master's		15 (37.5)
Other degree/unknown		4 (10.0)

State U&CF coordinator questions	Response statistics		
	Sample size (no.)	Mean (median)	Range
What percent of full-time do you think the state U&CF coordinator position would be today <i>without</i> the expanded federal assistance in 1991?	26	27.1 (25)	0–50
How many years has the U&CF coordinator been in the current position?	41	6.0 (4)	1–25
How many years of <i>total experience</i> does the state U&CF coordinator have in urban forestry?	41	11.9 (11)	1–31
How many different U&CF coordinators has your state had in the past 10 years?	41	2.4 (2)	1–6

U&CF = Urban and Community Forestry.

Table 5. Indicators of state urban and community volunteer coordination in the 50 United States.

State U&CF volunteer coordination questions	Response statistics		
	Sample size (no.)	Mean (median)	Range
Does your state have one or more staff serving the role of U&CF volunteer/partnership coordinator?	41		
What is the educational background of the state U&CF volunteer/partnership coordinator?	26		
Bachelor's			12 (46.2)
Master's			10 (38.5)
Other degree/unknown			4 (15.4)
Has frequent turnover (e.g., three or more employees in the past 10 years) occurred in the volunteer coordinator position?	29		8 (27.6)
If no full-time volunteer coordinator staff, what best describes the primary mechanism of coordination of community volunteer/partnership? (check one)	23		
Occurring solely through the state urban and community forestry coordinator			6 (26.1)
Part of the role of regional/district urban forestry staff			12 (52.2)
Part of the role of other staff within your agency (<i>name of role: regular forester</i>)			1 (4.3)
Occurring through the state urban forestry council			0 (0)
Conducted through contract (<i>describe: nonprofit, volunteer contractor</i>)			3 (13.0)
Other (<i>name: U&CF coordinator and regional staff</i>)			1 (4.3)
Volunteer/partnership coordination is not currently occurring			0 (0)
What responsibilities does the volunteer coordinator have? (check all that apply)	30		
Training volunteers or citizens			25 (83.3)
Organizational assistance			25 (83.3)
Arbor Day			23 (76.7)
Outreach			27 (90.0)
Marketing			10 (33.3)
Newsletter			14 (46.7)
Technical assistance to communities			25 (83.3)
Media relations/communications			20 (66.7)
Other (<i>name</i>)			8 (26.7)
Other (<i>name</i>)			3 (10.0)
State U&CF volunteer coordination questions			
(If yes) What percent of full-time is the volunteer/partnership position and if less than full-time, what other duties does the staff members(s) perform?	29	77.7 (100)	0–100
How many years has the coordinator been in the current position?	26	5.3 (4)	1–13
How many years of <i>total experience</i> does the state volunteer/partnership coordinator have in working with volunteers?	25	11 (10)	1–40

U&CF = Urban and Community Forestry.

Volunteer and partnership coordinators served 77.7% of full-time in this role. Other duties in addition to volunteer/partnership coordination are regional U&CF work in (46.2% of states), traditional forest management (23.1%), fire (15.4%), geographic information system (GIS) mapping, education center coordination, conservation education, and rural cooperative forestry each in 7.7% of states (data not shown). The volunteer/partnership coordinator executes a variety of tasks with most providing outreach, training volunteers or citizens, organizational assistance, technical assistance to communities, and Arbor Day assistance (Table 5).

The volunteer/partnership coordinators, similar to state U&CF coordinators, have advanced U&CF training and experience. Most have a Bachelor's degree or Master's degree with most degrees in forestry, natural resources, or a related field (Table 5). Volunteer coordinators have been in their position a mean of 5.3 (median, 4) years, ranging from 1 to 13 years. Total experience in volunteer/partnership activities ranged from 1 to 40 years with a mean of 11 years. Frequent turnover defined as three or more people in the last 10 years in this position has been a suggested

concern; however, 72.4% of states report this was not the case. The other respondents who indicated frequent turnover had occurred gave varying and no overall reasons, including low pay, lack of opportunities for advancement, relationship (poor implied) with the coordinator, and career change.

Staffing

Along with each state maintaining a U&CF coordinator, 73.2% of states use regionally assigned staff (Table 6). Fifty percent of these states reported they used trained U&CF specialists, 23.3% used general forestry specialists, and 26.7% of states used both types. Nearly 70% of regional staff report directly to a regional office rather than the state program coordinator. The U&CF staff duties range from 10% to 100% of full-time with a mean of 95.4% for U&CF coordinators, 85.4% for full-time staff, and 51.2% for part-time staff. Fire, forest stewardship, special projects, and forest health were most commonly given as other duties conducted by U&CF staff. Collectively, a mean 4.2 FTEs (median, 3.2; range, 1 to 11.5) were allocated for U&CF staff within a state.

Table 6. Staffing of the state urban and community forestry program in the 50 United States.

State U&CF staffing questions	Response statistics		
	Sample size (no.)	No. yes (%)	
Does the U&CF program have district/regional urban foresters either within the agency or under contract via a cooperative agreement with an external entity?	41	30 (73.2)	
What <i>best describes</i> the U&CF program structure?	30		
Regional/district staff are trained <i>urban and community forestry specialists</i> who spend the majority of their time in a U&CF role		15 (50.0)	
Regional/district staff are trained <i>general forestry specialists</i> who spend the majority of their time in multiple roles (e.g., U&CF activities, fire control, private forestry assistance, timber sales, and so on)		7 (23.3)	
The program regularly uses <i>both</i> urban and community forestry specialists and general forestry specialists		8 (26.7)	
Other		0 (0)	
Does the district/regional staff <i>report directly</i> to the U&CF coordinator?	26	8 (30.8)	
State U&CF staffing questions	Response statistics		
	Sample size (no.)	Mean (median)	Range
How many regional staff are there? (answer all as applicable)			
Full-time staff	28	4.4 (3)	1–17
Part-time staff	12	4.3 (2)	1–22
Full-time seasonal staff	1	1 (1)	1–1
Overall, on average, approximately what percent of each person's workload is devoted exclusively to U&CF assistance and related administration? (answer all as applicable)			
Percent urban forestry program coordinator	41	95.4 (100)	25–100
Percent full-time urban forestry staff	34	85.4 (98)	20–100
Percent part-time urban forestry staff	14	51.2 (45)	10–100
Percent full-time seasonal staff	2	75.0 (75)	50–100
Approximately how many total full-time equivalents (<i>2080-hour base year</i>) were allocated by your agency for U&CF either within the agency or under contract through a cooperative agreement with an external agency or entity?	40	4.2 (3.2)	1–11.5

U&CF = Urban and Community Forestry.

DISCUSSION

The results from this study describe state-level U&CF program capacity through indicators of four federal requirements (state U&CF coordinator, volunteer coordination, strategic plan, and state U&CF council) of state U&CF programs. Although many quantitative statewide assessments of local U&CF programs have been conducted (Ottman and Kielbaso 1976; Miller and Bates 1978; Reeder and Gerhold 1993; Ricard 1994; Tschantz and Sacamano 1994; Kuhns 1998; Thompson and Ahern 2000; Elmendorf et al. 2003; Schroeder et al. 2003; Kuhns et al. 2005) and comprehensive qualitative reviews historically depict state and federal U&CF programs (Johnston 1996; McPherson 2003; Wolf 2003), few studies have quantitatively documented the capacity of state U&CF programs (Andresen 1978; Casey and Miller 1988; NASF 1988; Reichenbach 1988; Hortscience and Aslan Group 2004; U.S. House of Representatives 2004).

Each state now has a state U&CF coordinator. This is an important step toward developing sustained state-level U&CF programs because the coordinator provides program administration and direction. Before the 1990 Federal Farm Bill, most states did not have a full-time U&CF coordinator (Andresen 1978; Casey and Miller 1988; NASF 1988). Insufficient funding along with state-level forest resource priorities are two factors that explained the lack of a coordinator. The federal U&CF assistance to states has coincided with increased staffing levels in the coordinator position. Without federal support, the coordinators suggested their position would be staffed at a level similar to that before the 1990 Federal Farm Bill (Casey and Miller 1988; NASF 1988; Reichenbach 1988). For example, without

federal U&CF support of the state program, nearly three-fourths of respondents who reside in states that lacked a full-time coordinator before 1990 believe a full-time coordinator would not exist; rather, a one-fourth FTE position was most likely in these states. Coordinators from all states collectively suggested a 46.6% FTE level within the coordinator position would exist nationally without federal support in the present. All state coordinators in this study who suggested their state would have a full-time coordinator without federal assistance were from states that had full-time U&CF coordinators before 1990.

State U&CF programs use a strategic plan to guide program priorities and activities. The plan is updated regularly at least every 5 years and over 85% of state U&CF programs use it annually or more frequently. The planning process generally prods the states to determine their resources and their goals, develop a strategy to reach their goals, and design an effective evaluation mechanism (Kilgore et al. 2006). Strategic plans provide multiyear direction for the state U&CF program and, in general, forest resource planners believe this is the most important reason for developing comprehensive plans (Kilgore et al. 2005). Achieving a positive end result of an enhanced urban forest is more likely because state U&CF programs are regularly developing, updating, and using strategic plans.

Forest resource planning, natural resource planning, and U&CF planning crosses many agencies and entities and coordination is a critical means to increase participation and avoid conflict (Ellefson et al. 2002; Thompson et al. 2005; Kilgore et al. 2006; Hauer and Johnson 2008). From this study, a lack of integration of urban forestry planning within state forestry plan-

ning documents was found. This creates difficulties with integration of the urban forest resource with the rural forest resource and the overall state and national development of policies, planning, and monitoring for sustainable forest resources regardless of location. This study also found that state U&CF programs reside in a variety of departments nationally, which may create challenges for coordination (Kilgore et al. 2005).

State forestry councils are used to foster coordination and development of forestry policies, goals, and objectives within a state. Nearly 60% of councils were rated as good or excellent with overall state-level U&CF coordination. The federal requirement for councils coincides with the increase from approximately 10% of states before 1990 to 100% now having one. This suggests that the Federal Farm Bill of 1990 was an important part that led to the vast development of councils. Ideally, councils meet regularly, provide a means for participatory input with U&CF programming and direction within a state, and provide strategic advice for the direction of U&CF programs within the state. We found that state councils were active in providing advice to the state forester for state U&CF program implementation, met regularly, and include a broad representation of constituents as part of the state council. One area that respondents felt improvement could be made was addressing diverse populations through U&CF efforts. National strategic plans and materials have been formulated to address this issue (McDonough et al. 2003; USDA-FS 2003). State U&CF councils are one way but not the only way to address U&CF coordination needs. The approaches taken are varied and future research on the effectiveness of different approaches is needed.

Coordination is important considering that programs and organizations affecting the use, management, and protection of forests are found in many agencies among states nationally (Konijnendijk et al. 2000; Ellefson et al. 2002). Coordination is used by organizations to achieve shared goals and objectives through methods that arrange, match, or harmonize policies and programs (Kilgore and Ellefson 1992). Coordination further serves to facilitate management across a regional context and jurisdiction with the different owners and managers of the urban forest (Dwyer et al. 2003). The National Urban and Community Forestry Advisory Committee (NUCFAC) serves as a national U&CF coordination mechanism (USDA-FS 2002). The NUCFAC functions to develop a national U&CF action plan; evaluate the implementation of that plan; and develop criteria for and submit recommendations with respect to the U&CF challenge cost-share program under the Cooperative Forestry Assistance Act (NUCFAC 1998). Likewise, state U&CF councils serve as a coordination mechanism for state-level U&CF needs and most commonly in over 70% of states have both executive level and general member level organization. General U&CF council membership is largest with a mean of 62 members (range, 0 to 310). More formal executive U&CF council membership varies between zero and 40 members with a mean of nine members. This is consistent with Kilgore and Ellefson (1992) who found formal forestry coordinating mechanisms averaged 11 members (range, 5 to 30 members). They further suggest defining what coordination needs exist, developing membership in formal mechanisms to a workable number of members (e.g., 10) with individual and organization interests, and defining the authority of a formal group to make recommendations.

States use a variety of U&CF coordinator mechanisms that vary from a dedicated person, to regional U&CF staff conducting

the role, or contracting volunteer coordination to outside sources such as nonprofit organizations. Volunteer partnerships are used to entice and involve local citizens in the development and management of urban forests (Nichnadowicz 2000; Ricard 2005). Volunteer partnerships, if done right, can lead to sustainable urban forest projects (Jones et al. 2005). At a minimum, they can raise public awareness and appreciation for the urban forest (Van Herzele et al. 2005). They have also been found to foster change in local urban forests and urban forestry programs (Vitosh and Thompson 2000). Whether any of the different formats taken by volunteer programs vary in effectiveness and efficiency was not addressed in this study. From this study and anecdotal reports from state and federal U&CF personnel, it is speculated that allowing states latitude in development of volunteer coordination mechanisms has fostered creative and program appropriate strategies.

With the apparent success with developing state U&CF programs since the 1990 Federal Farm Bill, several suggestions were provided by coordinators on areas that are less than positive. In many instances, this study found increases in the capacity of state U&CF programs to provide local U&CF assistance. Not all states were as successful, and those in general who had less state financial support had lower relative U&CF capacity (Hauer et al. 2008; Hauer and Johnson 2008). In these states, assistance to local urban forestry programs and staffing are lower. In general, the U&CF program was perceived as receiving less agency attention support than more traditional forestry efforts such as rural forestry management and fire control. This study also supports this perception with staff time of dedicated U&CF personnel being partially allocated to these traditional forestry practices. Likely the allocation of time in these areas is beneficial to rural forest management; however, it reduces the capacity to support identified urban forestry needs. Formal incorporation of urban forestry into the statewide forestry planning is important for holistic forest management. This study suggests most urban forestry planning is developed independent of the statewide forest planning process. The increasing migration of people and built environments within rural forests necessitates inclusion of urban forestry planning as part of the statewide planning process (Dwyer and Childs 2004). Coordination among urban forestry stakeholders is occurring nicely. Coordination among urban and rural forestry planning where lacking should increase linking the forest resource regardless of geography or population density.

CONCLUSION

This article reports on responses taken by state U&CF programs to meet four USFS program capacity areas that included the state U&CF program coordinator, volunteer coordination, state U&CF council, and program strategic plan. State U&CF programs are meeting USFS requirements set for receiving Cooperative Forestry Assistance. Each state now has a U&CF program coordinator, they used varying volunteer coordination approaches, involve a state U&CF council for program guidance, and regularly update the strategic plan as needed. State U&CF programs were found to vary in ways taken to meet USFS guidelines. Federal and state U&CF program managers can use these findings to continue building state and federal U&CF programs to meet the goal of increasing local urban forestry programs and the urban forest.

Acknowledgments. We thank the University of Minnesota Graduate School for a Thesis Research Grant and the Department of Forest Resources for partial financial support with this study. We also thank two anonymous reviewers for their constructive improvement of this paper.

LITERATURE CITED

- Andresen, J.W. 1978. Urban forestry today, pp. 3–8. In McBride, J., and R. Beatty (Eds.). *Proceedings of the California Symposium on Urban Forestry*, May 19–20, 1978. Berkeley, CA.
- Biles, L.E., and F.J. Deneke. 1982. Urban forestry programs begins fifth year. *Journal of Arboriculture* 8:154–156.
- Casey, C.J., and R.W. Miller. 1988. State government involvement in community forestry: A survey. *Journal of Arboriculture* 14:141–144.
- Clark, J.R., N.P. Matheny, G. Cross, and V. Wake. 1997. A model of urban forest sustainability. *Journal of Arboriculture* 23:17–30.
- Deneke, F. 1983. Urban and community forestry: Where are we going. *Journal of Arboriculture* 9:99–101.
- Deneke, F.J. 1992. A history of federal funding, pp. 188–189. In Rodbell, P.D. (Ed.). *Proceedings of the Fifth National Urban Forest Conference*, Los Angeles, November 1991. American Forestry Association, Washington, DC.
- Dillman, D.A. 2000. *Mail and Internet Surveys: The Tailored Design Method*. John Wiley and Sons, New York, NY. 464 pp.
- Dwyer, J.F., and G.M. Childs. 2004. Movement of people across the landscape: A blurring of distinctions between areas, interests, and issues affecting natural resource management. *Landscape and Urban Planning* 69:153–164.
- Dwyer, J.F., D.J. Nowak, and M.H. Noble. 2003. Sustaining urban forests. *Journal of Arboriculture* 29:49–55.
- Ellefson, P.V., R.J. Moulton, and M.A. Kilgore. 2002. An assessment of state agencies that affect forests. *Journal of Forestry* 100:35–41.
- Elmendorf, W.F., V.J. Cotrone, and J.T. Mullen. 2003. Trends in urban forestry practices, programs, and sustainability: Contrasting a Pennsylvania, U.S., study. *Journal of Arboriculture* 29:237–248.
- Hauer, R.J. 2005. *Urban Forest and Urban Forestry Capacity: Defining Capacity and Models of Capacity Building*. Doctoral Dissertation. Department of Forest Resources, University of Minnesota. www.uwsp.edu/cnr/forestry/faculty/hauer/Files/Hauer%20Dissertation.pdf (accessed 10/9/2007).
- . 2006. Urban forestry capacity building and models. In Phillips, V.D., and R. Tschida (Eds.). *Proceedings of the 4th International Conference on Environmental Management for Sustainable Universities*, June 26–30, 2006. Global Environmental Management Education Center, College of Natural Resources, University of Wisconsin, Stevens Point, WI. pp. 1–24.
- Hauer, R.J., C.J. Casey, and R.W. Miller. 2008. Advancement in state government involvement in urban and community forestry in the 50 United States: Changes in program status from 1986 to 2002. *Arboriculture and Urban Forestry* 34:5–12.
- Hauer, R.J., and G.R. Johnson. 2008. State urban and community forestry program funding, technical assistance, and financial assistance within the 50 United States. *Arboriculture and Urban Forestry* (in press).
- Hortscience and Aslan Group. 2004. *Assessment of the USDA Forest Service Urban & Community Forestry Program*. Prepared for the National Urban & Community Forestry Advisory Council, USDA Forest Service. HortScience, Pleasanton, CA. 47 pp with Appendixes. www.treelink.org/linx/?navSubCatRef=58 (accessed 10/9/2007).
- Johnston, M. 1996. A brief history of urban forestry in the United States. *Arboricultural Journal* 20:257–278.
- Jones, N., K. Collins, J. Vaughan, T. Benedikz, and J. Brosnan. 2005. The role of partnerships in urban forestry, pp. 187–205. In Konijnendijk, C.C., K. Nilsson, T. Randrup, and J. Schipperijn (Eds.). *Urban Forests and Trees: A Reference Book*. Springer, Berlin.
- Kilgore, M., R. Salk, and T. Prichard. 2005. State forest resource planning programs in the Northeast United States. *Northern Journal of Forestry* 22:221–228.
- Kilgore, M.A., and P.V. Ellefson. 1992. *Coordination of Forest Resource Policies and Programs: Evaluation of Administrative Mechanisms Used by State Governments*. Station Bulletin 598. Minnesota Agricultural Experiment Station. University of Minnesota, St. Paul, MN. 43 pp.
- Kilgore, M.A., C.M. Hibbard, and P.V. Ellefson. 2006. Comprehensive strategic planning for the use and management of forest resources: The experiences of state governments in the United States. *Forest Policy and Economics* 9:42–49.
- Konijnendijk, C.C., T.B. Randrup, and K. Nilsson. 2000. Urban forestry research in Europe: An overview. *Journal of Arboriculture* 26:152–161.
- Kuhns, M., B. Lee, and D. Reiter. 2005. Characteristics of urban forestry programs in Utah, U.S. *Journal of Arboriculture* 31:285–295.
- Kuhns, M.R. 1998. Urban/community forestry in the Intermountain West. *Journal of Arboriculture* 24:280–285.
- McDonough, M., K. Russell, L. Burban, and L. Nancarrow. 2003. *Dialogue on Diversity—Broadening the Voices in Urban and Community Forestry*. NA-IN-04-03. USDA Forest Service Northeastern Area, State and Private Forestry. 46 pp. www.na.fs.fed.us/spfo/pubs/uf/diversity_rpt/diversity_report.pdf (accessed 10/9/2007).
- McPherson, E.G. 2003. Urban forestry the final frontier. *Journal of Forestry* 101:20–25.
- Miller, R.W., and T.R. Bates. 1978. National implications of an urban forestry survey in Wisconsin. *Journal of Arboriculture* 4:125–127.
- NASF. 1988. *State Foresters Response to Urban Forestry Questionnaire*. National Association of State Foresters. Washington, DC. 52 pp.
- Nichnadowicz, J. 2000. Community involvement in urban forestry programs, pp.121–135. In Kuser, J.E. (Ed.). *Handbook of Urban and Community Forestry in the Northeast*. Kluwer Academic/Plenum Publishers, New York, NY.
- NUCFAC. 1998. *Action plan*. The National Urban and Community Forestry Advisory Council. Sugarloaf, CA. www.treelink.org/nucfac/nf98actn.htm (accessed 10/9/2007).
- Ottman, K.A., and J.J. Kielbaso. 1976. *Managing Municipal Trees, Urban Data Service Reports*. Vol. 8, No. 11. International City Management Association, Washington, DC. 15 pp.
- Reeder, E.C., and H.D. Gerhold. 1993. Municipal tree programs in Pennsylvania. *Journal of Arboriculture* 19:12–19.
- Reichenbach, M.R. 1988. Perspectives gained from the national urban forestry assessment: Forestry a community tradition, pp. 392–395. In *Healthy Forests, Healthy World, Proceedings of the 1988 Society of American Foresters National Convention*, Rochester, NY. Society of American Foresters, Bethesda, MD.
- Ricard, R.M. 1994. *The 1994 Urban and Community Forestry Survey Results*. University of Connecticut, Cooperative Extension Service, Storrs, CT. 62 pp.
- . 2005. The Meskwaka Tree Project: Ten Years of Community Forestry Volunteer Development. *Journal of Extension*. 43(6): Article Number 6IAW3. www.joe.org/joe/2005december/iw3.shtml (accessed 10/9/2007).
- Schroeder, H.W., T.L. Green, and T.J. Howe. 2003. Community tree programs in Illinois, U.S.: A statewide survey and assessment. *Journal of Arboriculture* 29:218–225.
- Thompson, J.R., W.F. Elmendorf, M.H. McDonough, and L.L. Burban. 2005. Participation and conflict: Lessons learned from community forestry. *Journal of Forestry* 103:174–178.
- Thompson, R.P., and J.J. Ahern. 2000. *The State of Urban and Community Forestry in California: Status in 1997 and Trends Since 1988*. Technical Report Number 9. Urban Forest Ecosystems Institute. California Polytechnic State University, San Luis Obispo, CA. 48 pp.

- Tschantz, B.A., and P.L. Sacamano. 1994. Municipal Tree Management in the United States. Davey Research Group and Communication Research Associates, Inc. Report, Kent, OH. 58 pp.
- Unsoeld, O. 1978. Legislative History of Urban Forestry: An Analysis. U.S. Department of Agriculture, Cooperative Forestry Internal Report. Washington, DC. 29 pp.
- U.S. House of Representatives. 2004. A Report to the Committee on Appropriations U.S. House of Representatives on the U.S. Forest Service Urban and Community Forestry Program. Surveys and Investigations Staff, Committee on Appropriations, U.S. House of Representatives, March 2004. 28 pp. www.treelink.org/linx/?navSubCatRef=58 (accessed 10/9/2007).
- USDA-FS. 2002. Cooperative Forestry Assistance Act of 1978. www.fs.fed.us/spf/coop/library/CFAA.pdf (accessed 10/9/2007).
- . 2003. Urban and Community Forestry Outreach Services Strategies for All Communities. 16 pp. www.na.fs.fed.us/spfo/pubs/uf/outreach/outreach.pdf (accessed 10/9/2007).
- USDA-FS U&CF. 2004. Strengthening Forest Service and State Leadership in the Care of Urban and Community Forest Resources. USDA Forest Service, Urban and Community Forestry, Washington, DC. www.fs.fed.us/ucf/action_plan.htm (accessed 10/9/2007).
- Van Herzele, A., K. Collins, and L. Tyrväinen. 2005. Involving people in urban forestry—A discussion of participatory practices throughout Europe. pp. 187–205. In Konijnendijk, C.C., K. Nilsson, T. Randrup, and J. Schipperijn (Eds.). *Urban Forests and Trees: A Reference Book*. Springer, Berlin.
- Vitosh, M.A., and J.R. Thompson. 2000. Iowa communities benefit from an externally funded tree-planting program. *Journal of Arboriculture* 26:114–119.
- Wolf, K.L. 2003. Introduction to urban and community forestry programs in the United States. *Landscape Planning and Horticulture* 4:19–28.

Richard J. Hauer (corresponding author)
 Assistant Professor of Urban Forestry
 College of Natural Resources
 University of Wisconsin-Stevens Point
 Stevens Point, WI 54481, U.S.
 rhauer@uwsp.edu

Gary R. Johnson
 Professor of Urban and Community Forestry
 College of Food, Agricultural and Natural Resource Sciences
 Department of Forest Resources
 University of Minnesota
 1530 Cleveland Avenue North
 St. Paul, MN 55108, U.S.

Résumé. Cette étude décrit la capacité du programme de *Foresterie urbaine et communautaire* au sein des 50 états américains au moyen de quatre indicateurs régionaux qui incluent le coordonnateur du programme au sein de l'état, la coordination volontaire, le conseil de l'état

pour le programme et le plan stratégique. Chaque état avait un coordonnateur de programme (la plupart étant à temps plein), pratiquait diverses approches de coordination volontaire, avait un conseil d'état pour le programme et avait un plan stratégique régulièrement mise à jour. La plupart des états avait du personnel dans des bureaux régionaux dont la majorité de leur temps était dévolu aux activités liées à ce programme. Occasionnellement, des tâches non liées au programme étaient menées par du personnel rattaché au programme telles que contrôle des feux, accueil en forêt, projets spéciaux et santé de la forêt, et ce parmi les tâches les plus fréquemment accomplies avec les autres régulièrement effectuées par le personnel régulier dans le cadre du programme. La plupart des programmes des états faisait appel à une variété d'approches pour supporter les efforts volontaires de base dans un état. Tous les états ont maintenant un coordonnateur de programme avec 95% de leurs tâches reliées directement aux activités de ce programme. Les conseils d'état varient dans le nombre de leur membre ainsi que leurs approches pour la coordination du programme au sein de l'état.

Zusammenfassung. Diese Studie beschreibt die Kapazität der U&CF-Programme innerhalb der 50 US-Bundesstaaten anhand von vier Indikationsbereichen einschließlich U&CF-Programmkoordinatoren, Freiwilligenkoordination, U&CF-Verwaltung und Strategieplan. Jeder Bundesstaat hatte einen U&CF-Programmkoordinator (überwiegend Vollzeit-Stelle), praktizierte unterschiedliche Einsätze von Freiwilligen, hatte einen U&CF-Verwaltungsrat und einen regelmäßig aktualisierten Strategieplan. Die meisten Staaten hatten zusätzlich regionale U&CF-Mitarbeiter, die ihre Hauptarbeitszeit den U&CF-Aktivitäten zu Verfügung stellen mit einem Durchschnitt von 4.2 FTEs von dem gesamten U&CF-Personal innerhalb eines Staates. Gelegentlich wurden Nicht U&CF-Aufgaben durch U&CF-Mitarbeiter geleitet mit Feuerkontrolle, Forstverwaltung, Spezialprojekte und Forstgesundheit, die meistens als durch U&CF-Personal geleitete Bereiche vergeben wurden. Die meisten U&CF-Programme benutzten unterschiedliche Ansätze, um die auf Freiwilligen basierende U&CF-Anstrengungen zu unterstützen. Alle Staaten haben nun einen U&CF-Koodinator, die zu 95 % mit U&CF-Aktivitäten ausgelastet sind. Staatliche U&CF-Verwaltungen variieren in der Anzahl ihrer Mitglieder und den Ansätzen für die Koordination von U&CF innerhalb eines Staates.

Resumen. Este estudio describió la capacidad de un programa de Dasonomía Urbana (U&CF) dentro de 50 estados de la USA usando cuatro indicadores de áreas que incluyeron el coordinador del estado, coordinador del voluntariado, consejo estatal y plan estratégico. Cada estado tuvo un coordinador del programa (la mayoría de tiempo completo), voluntarios, el consejo y un plan estratégico. La mayor parte de los estados tuvieron un personal estatal con la mayoría de su tiempo dedicado a las actividades del U&CF con una media de 4.2 (mediana 3.2) del total en un estado. Ocasionalmente se realizaron actividades no relacionadas con el U&CF como control del fuego, proyectos especiales y salud forestal, la mayoría comúnmente en otras áreas. La mayoría de los programas estatales de U&CF usaron una variedad de aproximaciones para apoyar el trabajo voluntario. Todos los estados tienen ahora un coordinador del U&CF con 95% de sus deberes asociados con las actividades del U&CF. Los consejos estatales del U&CF varían en su membresía y aproximación para la coordinación del U&CF dentro de un estado.