



Arizona State Forestry – Urban Forests Needs Assessment Survey



*A Snapshot of Arizona's Urban Forest
Management and Needs*

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Urban Forest Management and Needs*

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ACKNOWLEDGEMENTS

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EXECUTIVE SUMMARY

Background

Arizona's urban forests are comprised of trees and vegetation in urban areas that have a special relationship to people. The majority of Arizona's urban forests are located on private property, but they also include forests in and along urban parks, street trees, landscaped



boulevards, public gardens, washes and wetlands, greenways, and nature preserves.

The Arizona Urban Forest Needs Assessment Survey was designed to query urban forestry contacts in various communities in order 1) to learn about their attitudes regarding the general issue of urban forestry in Arizona, 2) to identify gaps in services provided by Arizona State Forestry, and 3) to facilitate the development of future program priorities. The survey was distributed to communities statewide that are served by the Arizona State Forestry – Urban and Community Program.

Critical Findings

One-hundred-fifty-seven (157) communities were surveyed across Arizona. From the 65 responses received, a number of critical findings were determined.

Existing Community Partnerships and Programmatic Strategies

- Only 54% of those surveyed were familiar with Arizona State Forestry.
- Common Arizona State Forestry programs mentioned were: fire management, grant opportunities, Native American outreach, and the Tree City USA program.

Community Partners Identified for Urban Tree-Related Activities

Non-Profit Organizations	34.4%*
International Society of Arboriculture	28.1%
State/Regional Tree Advisory Council	25.0%
State University Staff and Programs	25.0%
Other Professional Organizations	25.0%

*All percentages provided in tables within this section are the percentage of total respondents with that response to the question posed.

Assessment of Urban Forest Health

- 62% of survey responders felt the trees in their communities were in good health.
- Only 50% of those surveyed felt the trees in *other communities* of Arizona were in good health.
- Wildfire risk reduction was a common activity for responding communities, although 37% of all responding communities said that they did not do any wildfire risk reduction activities at all.

Top Five Common Wildfire Risk Reduction Activities Implemented in Communities Surveyed	
Fuels Reduction	34.3%
Prevention Outreach	22.9%
Firewise Activities	17.1%
WUI Assessments	5.7%
Fire Restrictions	2.9%

Existing Urban Forest Inventories

- Only 30% of the communities surveyed had an urban tree inventory.
- Half (50%) of existing urban tree inventories are collected using GPS and stored in ArcGIS databases, while 30% are collected and stored on paper.
- 50% of communities that have an urban tree inventory update it at least every 3 years.

Top Five Tree Attributes Sampled in Urban Tree Inventories	
Tree Species	90%
DBH	70%
Maintenance Needs	60%
Hazards	60%
Tree Height	50%

Tree City Status and Programmatic Needs

- The 65 survey responses included all but 4 of the current Tree City USA communities (Kingman, Litchfield Park, Paradise Valley and Snowflake).
- Of the communities responding to the survey, 56% were aware of the Tree City USA recognition program.
- Only 39.7% of communities have a tree ordinance.
- Only 25.4% of communities have a Tree Council or Advisory Board.
- 59% of communities surveyed engage non-profit organizations and community members in waterway/river cleanups and/or tree planting activities.
- Approximately 44% of survey responders indicated that their community hosts an Arbor Day event, whether they participate in the Tree City USA program or not.

Top Three Arbor Day Activities	
Public Community Event	92.3%
Education/Outreach to Schools	76.9%
Media and Press Release	61.5%

Training and Information Needs

- General knowledge of “urban forestry” is lacking – only 30% of respondents knew they had an urban forest.
- Less than one third of survey participants were familiar with i-Tree software.

Recommendations

The following recommendations would enhance the implementation of a comprehensive and targeted approach to urban forest management and should be incorporated into priority development for future program development and technical assistance efforts.

GAPS IN SERVICES AND PROGRAMS

- Improve the general agency marketing by developing informational brochures regarding Arizona State Forestry’s programs and services.
- Participate in outreach events to increase awareness of Arizona’s State Forestry’s programs (specifically UCF).
- Develop urban forestry specific training sessions to address inventory needs, among others.
- Develop a “Toolkit” for Arizona communities to help them in developing a Tree Board/Council and encourage urban tree sustainability.

TARGETED COMMUNITIES

- Improve outreach in communities that did not respond to the survey so that their urban forestry related needs can be identified and addressed.
- Continue to develop relationships with Tribal Governments to facilitate urban forestry activities in their communities.
- Target communities of larger populations in the northwestern portion of Arizona for UCF programs and training sessions (such as Flagstaff, Kingman and Williams).
- Encourage the Tree City USA recognition program in moderate and small-sized communities statewide.

TREE INVENTORY NEEDS

- Develop programs to provide technical assistance and guidance for communities seeking to complete an urban forest inventory.
- Conduct regional urban forest training sessions to improve rural community access to information and technical assistance.
- Partner with non-profit and/or educational groups to expand the adoption of urban forest inventory processes (and inclusion of data into the ASF-Urban Forest Resource Inventory Database).
- Develop a program to offer inventory services to communities at a reduced rate – such as utilizing Arizona State Forestry’s DOC crews or developing a summer student internship program (AmeriCorps or similar).

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URBAN & COMMUNITY FORESTRY OVERVIEW

FORESTS IN ARIZONA

The diversity of Arizona forests ranges from riparian gallery forests in the low deserts to sub-alpine and montane forests above 9,000 feet in elevation (O'Brien 2002). Forests cover roughly 27% of the state and occupy 19.4 million acres. These forests are comprised of 37 species of coniferous and hardwood trees. The majority of forestland is located above the Mogollon Rim with distinct areas scattered throughout the rest of the state. Juniper and pinyon-juniper woodlands are the most abundant forest type in Arizona, occupying approximately 14.8 million acres, or 20.3% of the state.

URBAN AND COMMUNITY FORESTS IN ARIZONA

Arizona's urban forests are comprised of trees and vegetation in urban areas that have a special relationship to people. Urban forests are typically composed of a mix of native and introduced tree species. In southern Arizona, native species include paloverde,



ironwood, mesquite and cottonwood trees, with introduced species such as eucalyptus, Australian sheoak (*Casuarina* spp.), and various pines. Northern Arizona native trees are predominantly ponderosa pine and pinyon pine, oak and juniper, with several introduced species that can make their home in the cooler climate. It is important to note that several species planted for landscaping purposes can escape their original planting sites and invade other areas, with Russian olive, tamarisk, and tree-of-heaven being prime examples.

The majority of Arizona's urban forests are located on private property, but they also include forests in and along urban parks, street trees, landscaped boulevards, public gardens, washes and wetlands, greenways, and nature preserves.

Based on a 2010 Forest Service report (Nowack and Greenfield, 2010), approximately 6,016 square miles of Arizona land are classified as "urban" or "community". Based on the same 2010 Forest Service report, urban and community land in Arizona currently supports an estimated 47.2 million trees.

Why Urban Forests Matter

Although "urban" or "community" forests account for only 5.3% of all the land in Arizona, it includes approximately 85% of the state's population. Management of forests and

trees within these lands has important implications for air and water quality, energy conservation through shading, diversity of wildlife habitat, maintenance of property values, and an improved quality of life for Arizona citizens.

The large number of urban trees greatly contributes to Arizona's ecosystems and community well-being. Trees located in Arizona's urban areas are estimated to store about 9.0 metric tons of carbon, and annually remove about 297,000 metric tons of carbon and 8,760 metric tons of air pollution.

ARIZONA'S URBAN AND COMMUNITY FORESTRY PROGRAM

Arizona State Forestry, formed in 1966, manages and reduces wildfire risk to Arizona's people, communities and wildland areas, while providing forest resource stewardship through strategic implementation of forest health policies and cooperative forestry assistance programs. Arizona State Forestry's (ASF) Urban and Community Forestry (UCF) Program is a cooperative forestry program that focuses on the stewardship of urban natural resources. The UCF Program provides technical assistance, education and other resources – responding to the needs of urban areas by helping communities maintain, restore and improve urban forest ecosystems throughout Arizona.

Program Objectives

The UCF Program provides information and technical assistance to Arizona cities and towns. Staff work directly with partners to build healthy and sustainable communities by promoting urban forestry awareness, and by fostering local action. The UCF program includes oversight and management of the Community Challenge Grant program; promotion and management of the Arizona Tree City USA, Tree Line USA and Tree Campus USA programs; and planning and implementation of the Arizona Arbor Day celebrations. The UCF Program, through partnerships with local organizations, also supports urban forest inventory and canopy development programs, tree-planting projects, local and state policy development, and local outreach and education programs.



Ultimately, the UCF Program seeks to increase awareness and appreciation of urban forests in Arizona.

URBAN AND COMMUNITY FORESTRY NEEDS ASSESSMENT

The UCF program reports annually on 452 selected Arizona communities to the U.S. Department of Agriculture Forest Service – State and Private Forestry Program through the Community Accomplishments Reporting System (CARS). This Needs Assessment survey was the first conducted for the selected communities in the CARS database.

Purpose and Vision

Through this Needs Assessment, the UCF Program hopes to understand how to better fulfill the urban forestry needs of the diverse cities, towns and communities in Arizona.

The purposes of this Needs Assessment survey are to:

- Gather information regarding existing community partnerships and programmatic strategies;
- Determine the knowledge base regarding the health of Arizona’s urban forests;
- Ascertain the presence of existing urban forest inventories, and where inventory gaps may exist;
- Identify for each community the Tree City USA status and programmatic needs; and
- Identify training and information needs for Arizona’s communities.

Objectives

The Needs Assessment Survey was developed with a number of objectives in mind that will assist the UCF Program in strategic planning and long-term program implementation.

Specific Objectives:

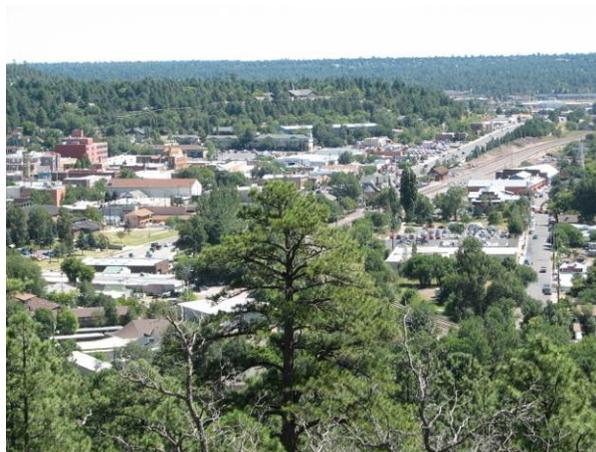
1. Identify at least one point-of-contact in every community in Arizona for urban and community forestry-related needs.
2. Achieve at least a 30% response rate to the complete survey (Tier 1 and Tier 2).
3. Capture robust data regarding urban tree inventories, including common methodologies and software utilized.
4. Gather information regarding existing community partnerships and programmatic strategies; urban forestry health assessments; Tree City USA status and programmatic needs; and training and information needs.



SURVEY FINDINGS

Prologue

This section describes the data collection methodology used for obtaining survey responses. It also provides an overview of the data analysis process and responses, along with key findings from the responding communities. Information obtained was used to identify gaps in services and to assist in the development of future program direction.



DATA COLLECTION METHODOLOGY

The 452 Arizona communities listed within the USDA Forest Service – State and Private Forestry’s CARS was used as a starting point for identifying target communities for this needs assessment. The community list generated through CARS is based on U.S. Census records and was last updated in 2006. Contact information was only available for 157 communities (35% of total). Communities with populations greater than 5,000 were initially targeted, though data was collected for communities with smaller populations where possible.

A point-of-contact for each community was obtained through internet searches during April and May 2012. Once an initial point-of-contact was determined, a preliminary survey (Tier 1) was sent via email (SurveyMonkey) in early June 2012, which was followed by a more in-depth survey (Tier 2) using the same SurveyMonkey process in August 2012. Tier 1 and Tier 2 surveys covered a variety of topics, but did not repeat questions (Appendix A – 2).

Beginning July 2012, any community that did not respond to the SurveyMonkey emails was contacted via telephone to complete the survey. All responses after 11:59pm, August 27, 2012, were not included in this Needs Assessment Analysis.

DATA ANALYSIS AND RESPONSES RECEIVED

Of 157 communities contacted via email and phone, 65 responded to the surveys resulting in a 42% response rate (Figure 1). Three surveys of the 65 submitted were incomplete with responses to some questions being included in this analysis.

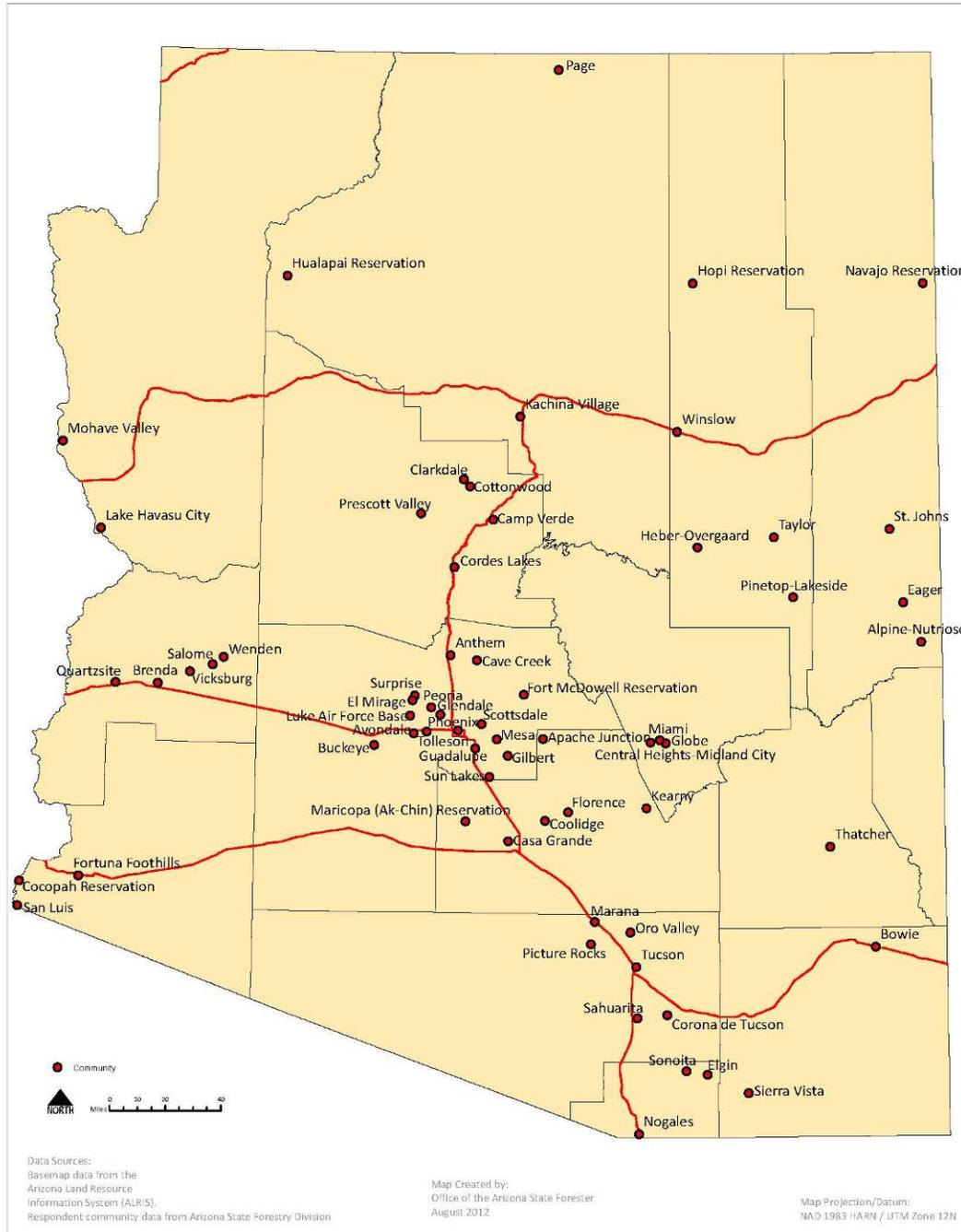


Figure 1. Communities that participated in the Arizona Urban Forest Needs Assessment Survey.

Sixty-three (63) communities responded to the initial survey (Tier 1), and 35 of those responded to the subsequent survey (Tier 2). Survey results from both Tier 1 and Tier 2 were combined for the purpose of this assessment.

Twenty-two (22) Tribes were contacted via email and telephone, which yielded 6 responses (27%). All 6 responses received from Tribes were attained via email (SurveyMonkey). Tribes that responded include: Cocopah Tribe, Fort McDowell Tribe, Hopi Tribe, Hualapai Tribe, Maricopa (Ak-Chin) Tribe, and the Navajo Nation. Areas represented by the Tribal response are depicted in Figures 2 – 7.

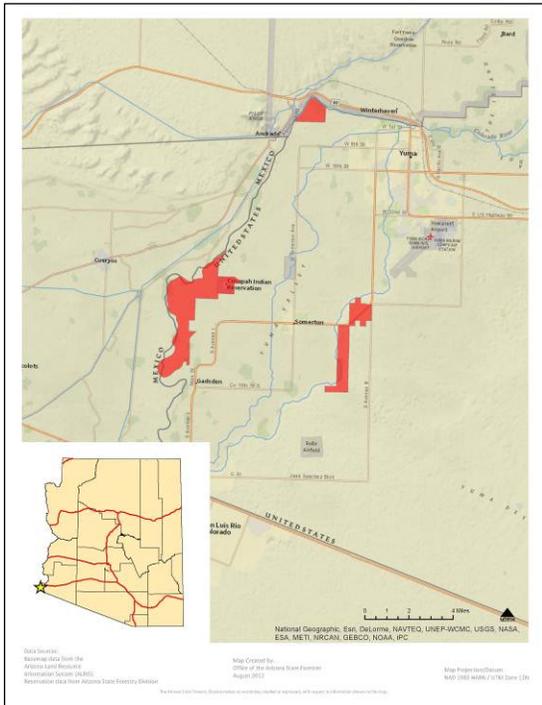


Figure 2. Cocopah Tribal area represented in survey responses.

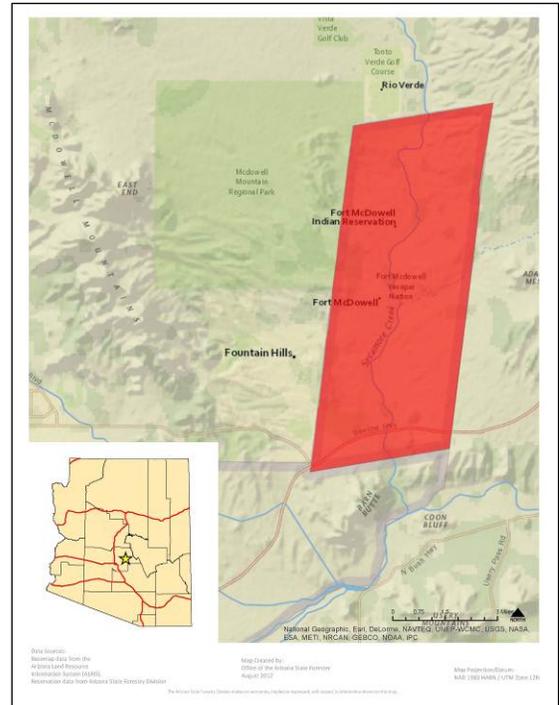


Figure 3. Fort McDowell Tribal area represented in survey responses.

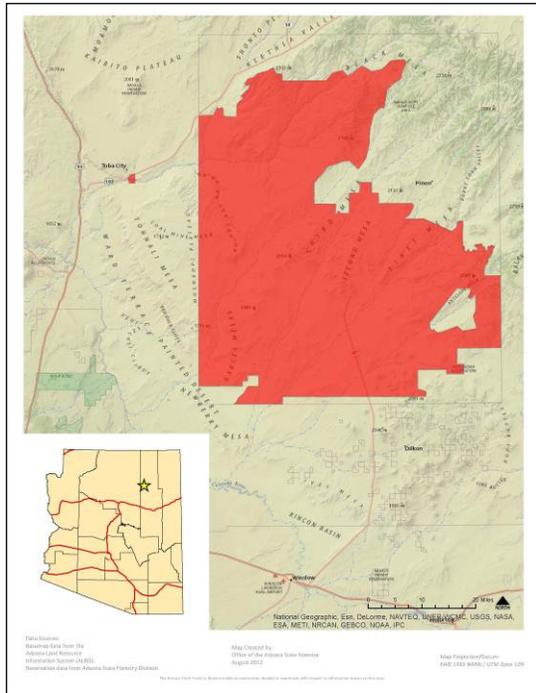


Figure 4. Hopi Tribal area represented in survey responses.

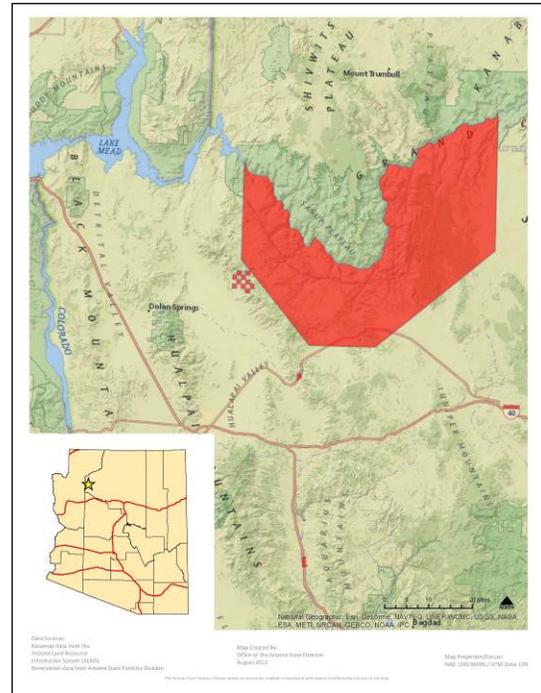


Figure 5. Hualapai Tribal area represented in survey responses.

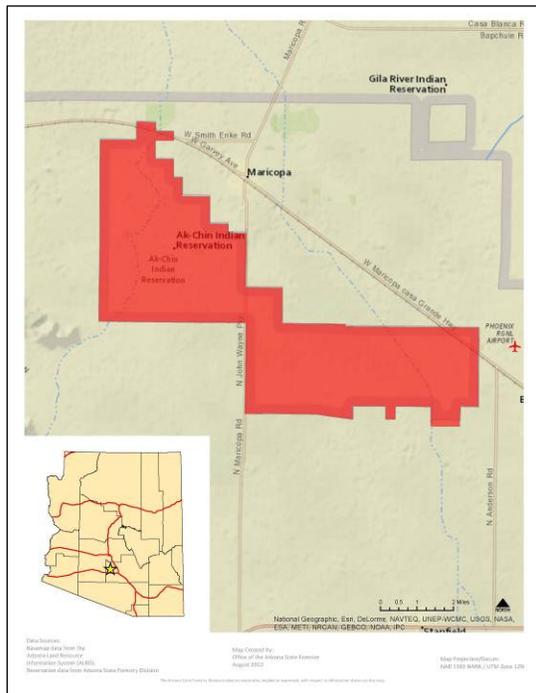


Figure 6. Maricopa (Ak-Chin) Tribal area represented in survey responses.

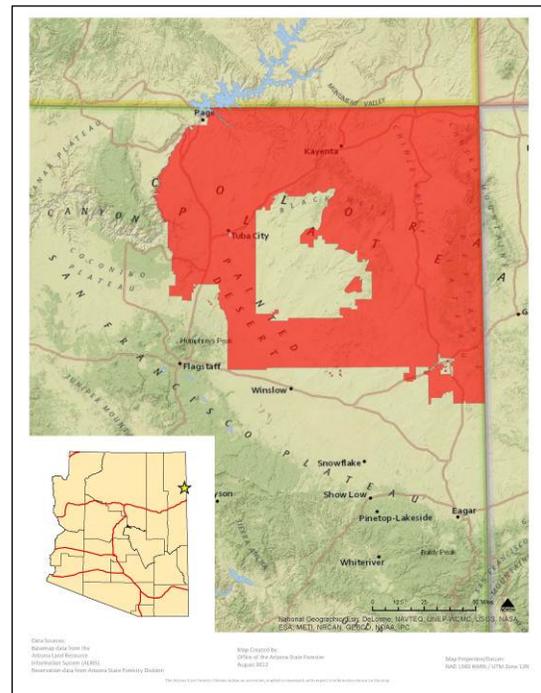


Figure 7. Navajo Nation area represented in survey responses.

KEY FINDINGS

The forestry contacts for the majority of larger communities were housed within the Parks and Recreation Department or the Public Works Department. Alternatively, smaller communities had forestry contacts through their local Chambers of Commerce, Fire Districts, and Property Owners' Associations.

Tribal contacts were provided by the Arizona State Forestry Tribal Liaison. Typically, these were individuals associated with either a Natural Resources Section (such as Parks or Forestry), although some Tribal contacts are through the Tribe's fire department or fire district.

Existing Community Partnerships and Programmatic Strategies

To understand the community partnerships currently established around Arizona and the potential for future community partnerships, respondents were asked a series of questions pertaining to staffing and community events.

When respondents were asked if they were familiar with Arizona State Forestry and its programs, 54% responded yes. Common familiar programs included: fire management, grant opportunities, Native American outreach, and the Tree City USA recognition program.

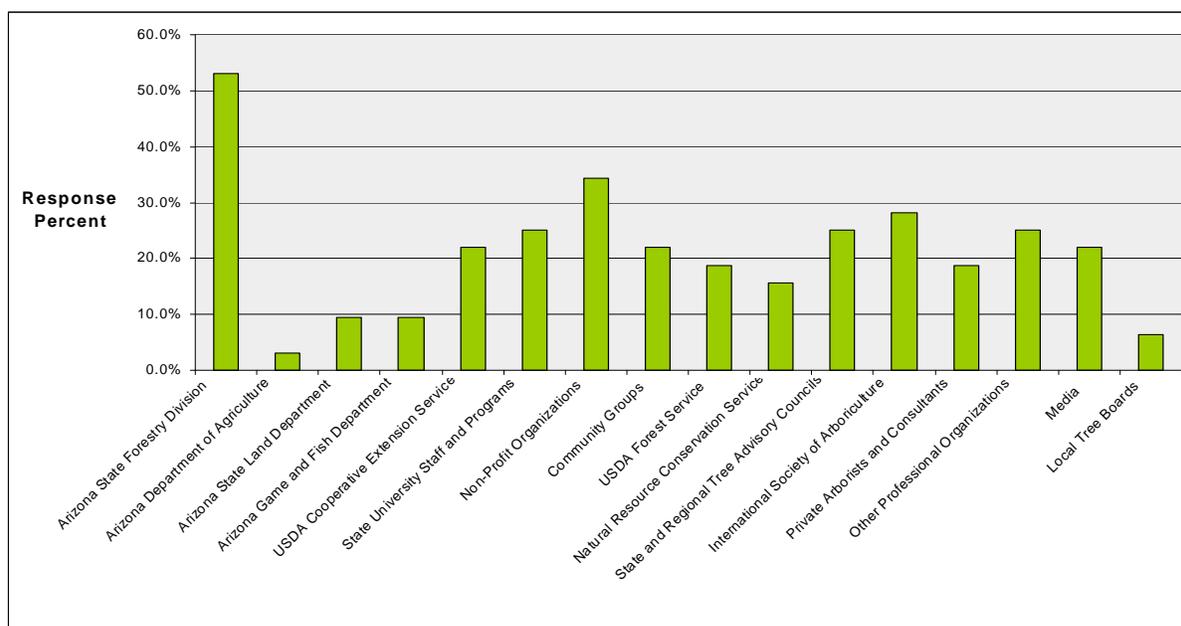


Figure 8. Key community partners for developing and distributing tree related information in Arizona.

Respondents were asked to identify key partners in developing and distributing tree-related information to determine existing partnerships. Overall, responses were evenly distributed among the 16 choices with 34% of respondents indicating that they partner with Non-Profit Organizations (Figure 8). Fifty-nine percent (59%) of respondents

indicated that they engage Non-Profit organizations in waterway/river cleanup and/or tree planting activities.

Sixty-Nine percent (69%) of respondents indicated their community has 0-5 staff supporting tree related activities (Figure 9). Two communities indicated they have a staff of greater than 20 for tree-related activities.

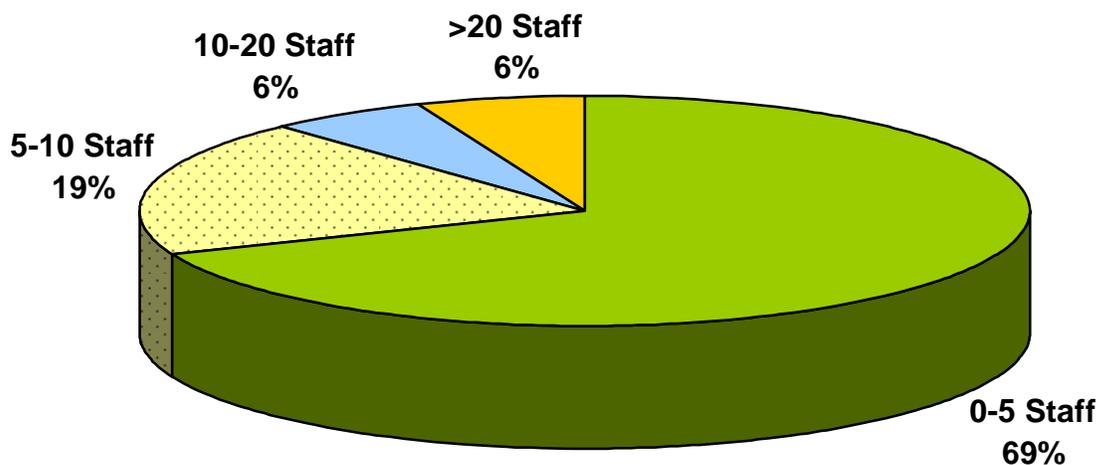


Figure 9. Staff support for tree-related activities reported in communities surveyed.

Awareness of tree-related volunteer groups and organizations within communities was good – 41% of respondents indicated these groups were active in their community. Volunteer groups mentioned included: church groups, Master Gardeners (Cooperative Extension), the Audubon Society, Girl/Boy Scouts, and local electrical utilities. Seventy-eight percent (78%) of respondents indicated that free trees were not available in their community via their own activities or those of another organization.

Assessment of Urban Forest Health

In order to determine local and statewide perceptions and attitudes related to the health of Arizona's urban forests, two questions were included in the survey that addressed local and statewide urban forest health. The majority (62%) of respondents felt the trees within their own community are in good health (Figure 10); and only 50% felt the urban trees were in good health statewide (Figure 11). Six percent (6%) felt the urban trees were in poor health statewide.

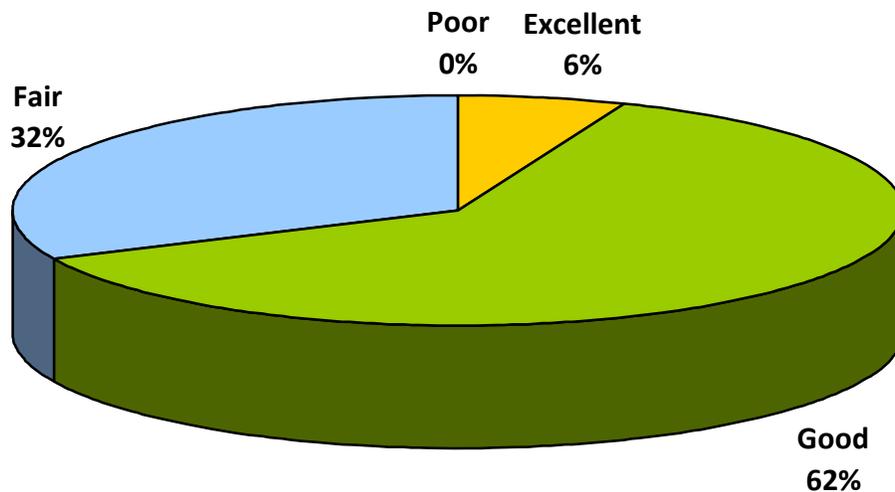


Figure 10. General assessment of the health and condition of trees within communities surveyed.

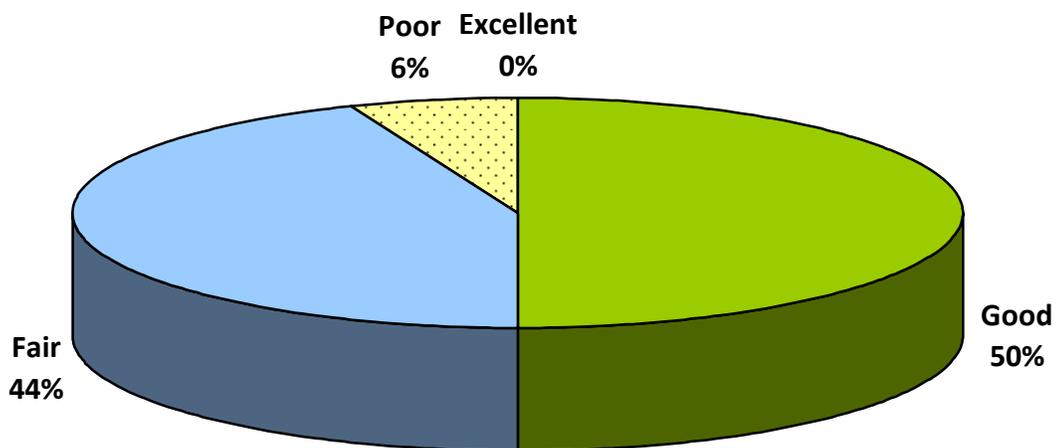


Figure 11. General assessment of the health and condition of the trees within the cities/towns of Arizona.

Existing Urban Forest Inventories

Having a tree inventory is an essential tool when it comes to the management of urban trees. Without one, improper planning and maintenance may occur which could become a costly liability. Inventories are tools for gathering accurate information on tree health and species diversity as well as the social, environmental, and economic value each tree provides. The questions regarding tree inventories in the survey will aid in future collaboration with respondents.

Initially, survey respondents were asked if their community has a tree inventory. Eleven communities self-identified as having tree inventories and 24 communities indicated they do not. Of the communities identified that have tree inventories, 40% responded that they update their inventory annually. Ten percent (10%) of the responding communities with complete inventories update their tree inventory every 2-3 years, while 50% of communities update every 4-5 years or not at all.

Communities that do not have a tree inventory were asked to provide the inhibitions that prevented them from completing one. Respondents were able to choose from a list of 7 potential inhibitions; available time, expertise, and lack of staff comprised 63% of all responses. Lack of City Council support and lack of community support were the least selected and comprised 14% of all responses. (Appendix A-2.1)

Respondents were also asked to approximate the number of trees within their community. Thirteen percent (13%) of respondents estimated between 0-1,000 individual trees while 46% of respondents estimated the number of trees in their community to be between 1,000 – 10,000 individual trees (Figure 12). The remaining 13% of respondents approximated their community to have greater than 100,000 individual trees.

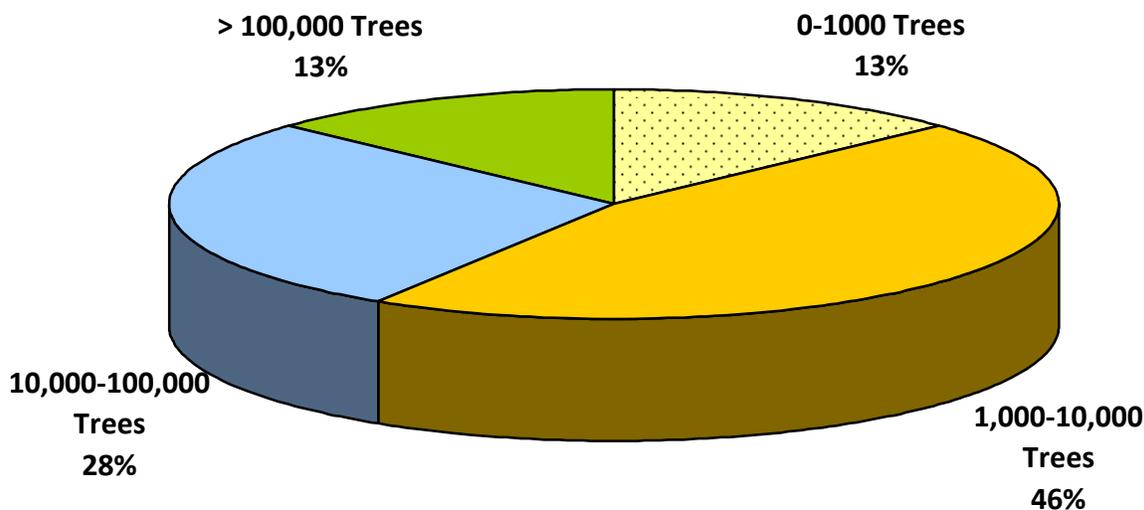


Figure 12. Approximate number of trees in survey responder's communities.

Recording specific tree attributes such as species, DBH, height, and hazards can be useful when establishing an urban forest management plan and calculating the benefits trees provide. Survey respondents who have tree inventories were asked a series of questions regarding the specific attributes they collect.

Sixty percent (60%) of respondents indicated that they record specific location data for trees within their urban forest inventory. Attributes recorded varied by community, but the most commonly collected attribute was tree species (90%) (Figure 13), and no community urban tree inventory includes crown width. Leaf condition, bark condition, conflict with overhead lines, and adjacent land use were specifically noted by one respondent as additional tree attributes that are recorded.

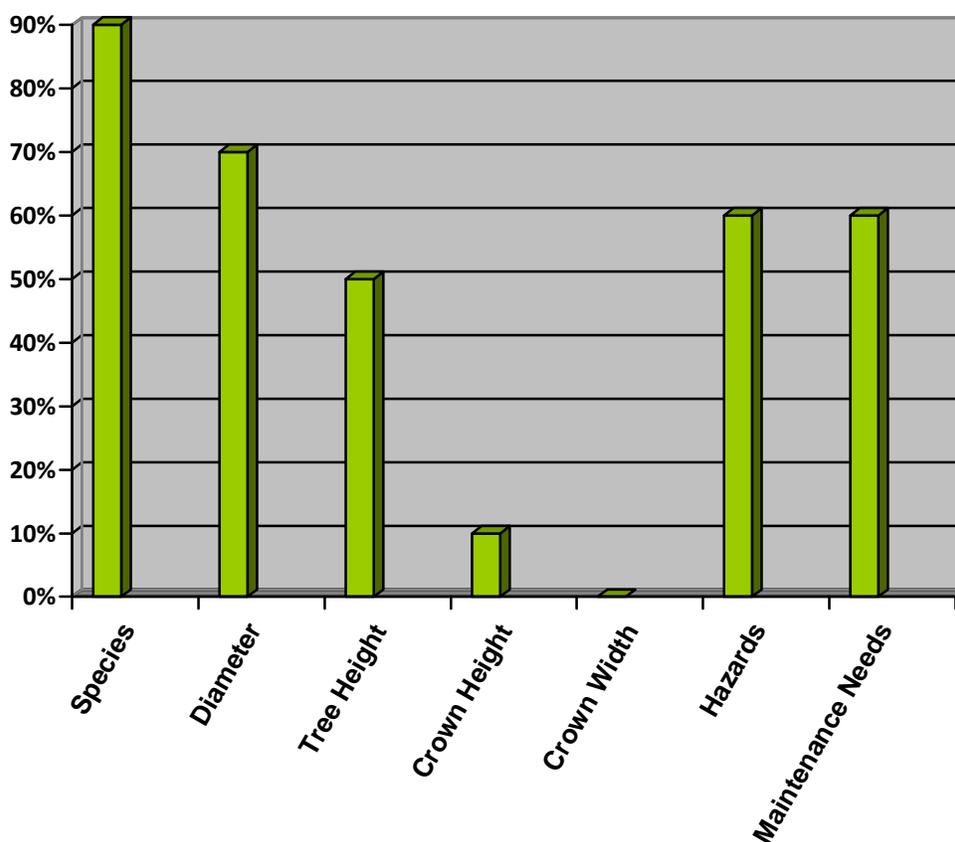


Figure 13. Specific tree attributes recorded for community urban tree inventories.

Understanding how each community houses their tree inventory data is crucial in determining the efficiency of database communication. To the question, “What type of database is the Tree Inventory in,” half of the survey respondents house their tree inventory data in ArcGIS while 30% have their tree inventory on paper. Four respondents house their data in more than one database type.

iTree is a peer-reviewed software suite from the USDA Forest Service that provides urban and community forestry analysis and benefits assessment tools. iTree helps communities of all sizes to strengthen their urban forest management and advocacy efforts by quantifying the environmental services that trees provide along with the urban forest structure in a given area. Some environmental services that iTree can calculate are the amount of carbon sequestered, amount of rainfall intercepted, and canopy cover provided. When survey respondents were asked if they have heard of iTree, 72% replied that they had not.

Tree City USA Status and Programmatic Needs

The Tree City USA program sponsored by the Arbor Day Foundation and administered by the ASF – UCF Program provides, among other things, national recognition for greener communities. The requirements to be a Tree City USA community are (1) a tree board or department, (2) a tree care ordinance, (3) a community forestry program with an annual budget of at least \$2 per capita, and (4) an annual Arbor Day observation and proclamation. Benefits of being a recognized Tree City USA are many, including direction and assistance by supporting the framework for a healthy sustainable urban forest that reduces energy costs and consumption, boosts property values, builds strong community ties, and honors community.



Fifty-six percent (56%) of the communities surveyed were familiar with the Tree City USA Program. (25% of the survey respondents are currently active in the Tree City USA Program.)

Arbor Day celebrations are a key component for spreading the word about urban trees. Forty-four percent (44%) of the respondents indicated that their community hosts Arbor Day celebrations, and celebrations involved a variety of activities including: public community events (92%), education and outreach to schools (77%), and through media-press releases (62%). Tree planting ceremonies and Arbor Day proclamations by the Mayor were specifically noted by certain respondents.

Tree councils/boards and tree ordinances, which are important for making cost/benefit management decisions based on goals and objectives for trees within a community, were also addressed in this needs assessment survey. Forty percent (40%) of the communities surveyed indicated they have a tree ordinance, and 25% have a tree council or board.

Training and Information Needs

To understand where training and additional urban and community forestry information is needed around Arizona, respondents were asked if they had an urban forest. Seventy percent (70%) of survey respondents replied that they did not.

When survey respondents were asked what programs or activities their community participates in to reduce wildfire risk, 34% of respondents replied that they participate in Fuels Reduction. Twenty-three percent (23%) of respondents replied that they participate in some sort of prevention work, while only 17% of respondents said they are a Firewise program participant.



DISCUSSION AND RECOMMENDATIONS

GAPS IDENTIFIED

Completion of this Needs Assessment resulted in the identification of a multitude of gaps in urban forestry services across the state, and a clear lack of knowledge about Arizona State Forestry (in general) and its programs.

Services and Programs

Arizona State Forestry has a mission to reduce the threat of wildfire to Arizona's communities and wildlands while improving the sustainability of forest resources. To accomplish strategic objectives, a variety of programs are implemented throughout the state. However, the survey responses demonstrated a clear lack of awareness regarding Arizona State Forestry and the services and programs available to communities and organizations. In some cases, there was obvious confusion regarding programs offered by Arizona State Forestry vs. those offered by other agencies such as the Arizona State Land Department, the USDA Forest Service and the Bureau of Land Management.



Targeted Communities

Although every effort was made to obtain a point-of-contact for each of the randomly sampled communities, it proved challenging for communities of small populations, preventing the collection of urban forest needs in some of the more rural parts of the state. Additionally, even though a point-of-contact was available, some of Arizona's larger population communities did not respond to the needs assessment survey (Douglas, Flagstaff, Sedona, Williams, Yuma, etc.). This resulted in large gaps in the data for certain sections of the state – primarily the northwestern portion of Arizona.

Another targeted community group was the currently recognized Tree City USA communities, which were all included in the survey. Of the 20 recognized communities, only 16 communities responded to the survey. The four communities that did not respond were: Kingman, Litchfield Park, Paradise Valley and Snowflake. Future survey efforts should attempt to capture the needs of all recognized Tree City USA communities in order for their needs to be identified and addressed.

Tree Inventories

Seventy percent (70%) of the communities sampled indicated that they *did not* have urban tree inventories. Since it is imperative to know what is present before it can be managed, a tree inventory is a critical feature in any long-term urban tree sustainability plan.

RECOMMENDATIONS

To ensure the UCF Program is addressing current gaps and needs, an Urban Forest Needs Assessment Survey should be conducted every three years at a minimum although a more frequent sampling may be necessary. A follow-on urban forest survey should be conducted no later than 2015.

Services and Programs

To overcome the gaps in services and programs identified above, the following suggestions are provided:

- Improve the general agency marketing by developing informational brochures and/or videos regarding Arizona State Forestry's programs and services.
- Participate in outreach events to increase awareness of Arizona's State Forestry's programs (specifically UCF).
- Develop urban forestry specific training sessions that include:
 - Overview of the Arizona State Forestry UCF Programs (what services are available, and how communities/groups become engaged)
 - iTree overview and introduction
 - iTree advanced (to include the use of iTree ECO)
 - Urban tree inventory guide (how to)
 - Urban forest health issues
- Develop a "Toolkit" for Arizona communities to help them in developing a Tree Board/Council.

Targeted Communities

To overcome the gaps identified in targeted communities identified above, the following suggestions are provided:

- Improve outreach in communities that did not respond to the survey so that their urban forestry related needs can be identified and addressed.
- Target communities of larger populations in the northwestern portion of Arizona for UCF programs and training sessions (such as Flagstaff, Kingman and Williams).
- Find local partners that can help encourage the Tree City USA recognition program in moderate and small-sized communities statewide.

Tree Inventories

To overcome some of the tree inventory gaps identified in Arizona, the following suggestions are provided:

- Develop a program that will provide assistance to communities in completing urban forest inventories, including a “Toolkit” to assist with increased awareness and “how to” tips.
- Conduct urban forest training sessions regionally to improve rural community access to inventory trainings and technical assistance.
- Partner with non-profit and/or educational groups to expand the adoption of urban forest inventory processes.
- Develop a program to offer inventory services to communities at a reduced rate – such as utilizing Arizona State Forestry’s DOC crews or developing a summer student internship program (AmeriCorps or similar).

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APPENDICES

- A - 1. Works Cited/ References
- A - 2. Survey Questions and Responses Summary
- A - 3. Survey Methodology and Analysis Details

A – 1. WORKS CITED /REFERENCES

Arbor Day Foundation. *Tree City USA Standards*. Accessed August 27, 2012. available at <http://www.arborday.org/programs/treeCityUSA/standards.cfm>

i-Tree. *Tools for Assessing and Managing Community Forests: About Us*. Accessed August 27, 2012. available at <http://www.itreetools.org/about.php>

Nowak, D. J., and E. J. Greenfield. 2010. *Urban and Community Forests of the Mountain Region: Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, and Wyoming*. General Technical Report NRS-63. Newtown Square, PA: U.S. Department of Agriculture, Forest Service, Northern Research Station. 78pp.

O'Brien, R.A. 2002. *Arizona's Forest Resources, 1999*. Resource Bulletin RMRS-RB-2. Ogden, UT: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 116pp.

Table A-2.1. Continued.

Who are your key partners in developing and distributing tree related information?							
53.1%	Arizona State Forestry Division	3.1%	Arizona Department of Agriculture	9.4%	Arizona State Land Department	9.4%	Arizona Game and Fish Department
21.9%	USDA Cooperative Extension Service	25.0%	State University Staff and Programs	34.4%	Non-Profit Organizations	21.9%	Community Groups
18.8%	USDA Forest Service	15.6%	Natural Resource Conservation Service	25.0%	State and Regional Tree Advisory Councils	28.1%	International Society of Arboriculture
18.8%	Private Arborists and Consultants	25.0%	Other Professional Organizations	21.9%	Media	6.3%	Local Tree Boards

Table A-2.2. Completed Tree Inventories by Community Name, Year and Update Frequency.

Having a tree inventory is an essential tool when it comes to the management of urban trees. Without one, improper planning and maintenance may occur which could become a costly liability. Inventories are tools for gathering accurate information on tree health and species diversity as well as the social, environmental, and economic value each tree provides. Knowledge regarding the names, year completed and update frequency for community tree inventories will create greater awareness of current urban forest conditions and better collaboration across Arizona. In the survey, the City of Mesa indicated a completed tree inventory but did not respond to the questions regarding year completed and update frequency.

Community	Year	Update Frequency
Gilbert	2006	Never
Quartzsite	2011	1 Year
Navajo	2004	4-5 Years
Marana	2009	2-3 Years
Glendale	2011	1 Year
Phoenix	2012	1 Year
Prescott Valley	2005	Never
Tucson	2009	Never
Anthem	2011	4-5 Years
Scottsdale	2012	1 Year

A – 3. SURVEY METHODOLOGY AND ANALYSIS DETAILS

SURVEY METHODOLOGY DETAIL

An attempt was made to identify contact information for all 452 communities in Arizona's 2012 list of communities reported to the Forest Service State and Private Forestry Program through the Community Accomplishments Reporting System (CARS). This included finding an urban and community forestry point of contact name, title, email address, phone number and mailing address for each community using the internet. Almost all community contact information found was for those with a total population greater than 5,000. Finding contact information for communities with populations less than 5,000 was increasingly difficult down to 1,500 and below, where almost no contact information was found. Parks and Recreation and Public Works Departments were the majority of the contacts for larger communities; while local Chambers of Commerce, Fire Districts and Property Owners' Associations were the majority of the contacts for smaller communities.

After contact information was obtained for the randomized sample of communities, a preliminary survey (Tier 1) was sent to the identified point of contact using SurveyMonkey via an ASF email address where the communities could access a web-based survey (Appendix 1). This preliminary survey started collecting responses in June 2012. Tier 1 was then expanded to the remainder of Arizona communities on the 2012 CARS list. The objective was to identify a point of contact—name, title, email address, phone number and mailing address—for urban and community forestry programs in all Arizona communities. This objective is ongoing.

Like the preliminary survey, contact information was obtained for almost all of the communities with a total population greater than 1,800, although many did not have an email address. To date, points of contact have been limited for communities with populations less than 1,800. Locating contact information for tribal communities initially proved difficult, so ASF Tribal Outreach Coordinator, Phil Huebner, was tasked with assisting the project. Huebner was able to provide a list of contacts for each of the 23 tribal areas that were subsequently contacted and asked to complete the survey for the tribe.

Beginning July 2012, any community that had not yet responded to the preliminary emailed survey (Tier 1) was contacted by phone to complete the survey. Communities were contacted by phone until late July 2012.

Communities that completed the preliminary survey were requested, by the same SurveyMonkey process, to complete a more detailed second-level (Tier 2) survey. In August 2012, communities that had not completed Tier 1 and/or Tier 2 were contacted by phone again; the majority of those being communities with total populations over approximately 1,800. All responses after 11:59pm, August 27, 2012, were not included in this Needs Assessment Analysis.

SURVEY ANALYSIS DETAIL

After responses were collected through SurveyMonkey, individual community and summary survey data were exported into a Microsoft Excel spreadsheet. Calculation of percentages was completed automatically through SurveyMonkey prior to data export into Microsoft Excel. For the “free response” question regarding wildfire risk, individual responses were gathered, categorized, and percentages were generated for each category.

All figures and tables were created by Arizona State Forestry staff in Microsoft Excel using data produced through SurveyMonkey. Maps were also created by Arizona State Forestry staff using Esri’s ArcMap 10.1. All survey response data is housed on the Arizona State Forestry server and with SurveyMonkey.com.