

Development of Utility Best Management Practices

Tree Risk Assessment and Abatement



UTILITY BEST MANAGEMENT PRACTICES
TREE RISK ASSESSMENT AND ABATEMENT
FOR FIRE PRONE STATES AND PROVINCES IN THE
WESTERN REGION OF NORTH AMERICA



Why Develop a BMP?

- Hazard trees represent a significant liability to the general public, cities, counties, utilities, and State and Federal agencies
- Unmanaged hazard trees can cause personal injuries and fatalities, damage to public and private property, power outages, and threats to the nation's critical infrastructure
- The Utility Arborist Association found that there was a need for industry accepted procedures to identify hazard trees during power line patrols

BMP Objectives



- This BMP is intended to be an industry and stakeholder accepted protocol for identifying individual trees located within a large population of trees, which should be examined more closely to assess their potential risk
- The application of this BMP is intended for the fire-prone states and provinces in the western region of North America
- The long-term goal is to produce a national or international set of guidelines that could be adapted to meet local or regional conditions

BMP Project Plan

- Identify Relevant Stakeholders
- Convene a Working Group that Represented the Interests of the Stakeholders
- Identify and Evaluate Similar Efforts
- Create a Draft BMP for Circulation
- Finalize the Draft BMP
- Publish and Distribute BMP

Identify Relevant Stakeholders



- American Society of Consulting Arborists
- Arizona State Forestry Division
- Cal Fire
- California Board of Forestry
- California Fire Alliance
- California Public Utilities Commission
- Caltrans
- Edison Electric Institute
- Large Land Owners
- Municipal Forestry
- Nevada State Fire Marshal
- Oregon Office of the State Fire Marshal
- US Fish and Wildlife Services
- US Forest Service
- Utility Arborist Association
- Vendors
- Washington Office of the State Fire Marshal
- Western Utilities

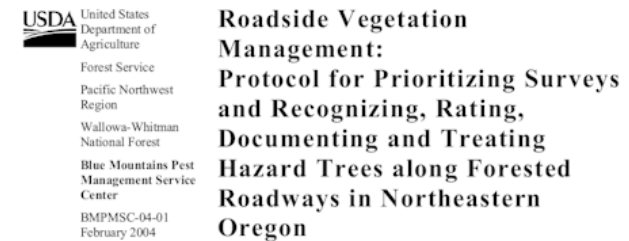
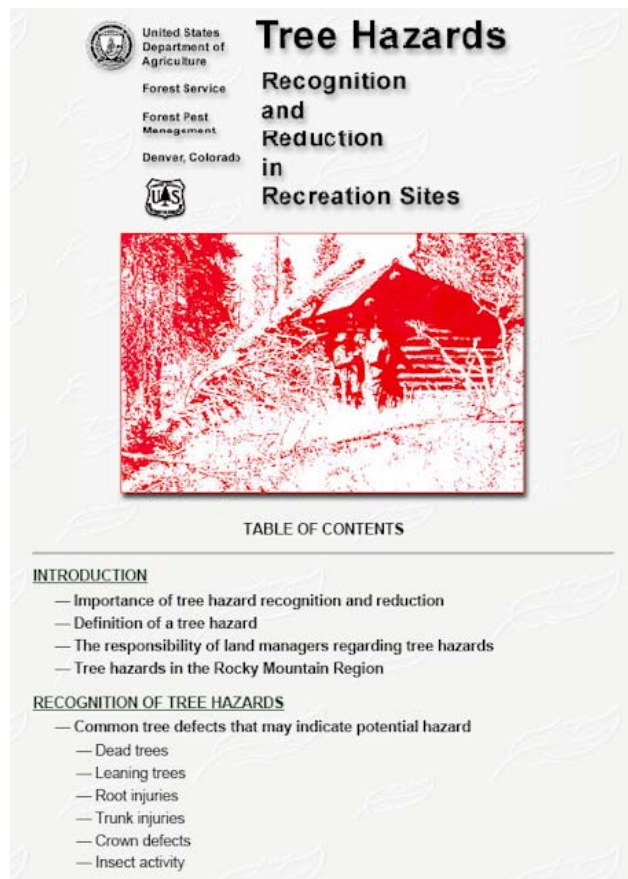
Solicit Working Group Participants

- Don Akau, San Diego Gas & Electric Co.
- Cleto Arceo, NV Energy
- Jim Clark, HortScience
- Lynn Cullen, Pacific Gas & Electric Co.
- Michael Daleo, San Diego Gas & Electric Co.
- Clark Douhan, Southern California Edison
- Larry Evans, Davey Tree Surgery Co.
- Alan Finocchio, Davey Tree Surgery Co.
- Mark Frizzell, Sacramento Municipal Utility District
- Bruce Hagen, Cal Fire
- Randy Miller, PacifiCorp
- Bob Novembri, Novembri Consulting, LLC
- Judy Perry, USDA Forest Service
- Jeff Spohn, Arizona Public Service
- David Wood, University of California
- Richard Zito, Western Environmental Consultants, Inc.



Review Similar Efforts

- Although many documents were reviewed the following two appeared to be most relevant to the BMP under development



CRAIG L. SCHMITT



Create a Draft and Finalize the BMP

- Two workshops were conducted during the development phase of the BMP
- A professional facilitator was engaged in order to help focus the group and gain consensus on various issues
- Once the Working Group completed the draft BMP a Review Committee was enlisted to provide comments and recommendations
- The BMP development process spanned a 24-month period

Developing the BMP

Initial Steps

In order to begin the development process it was necessary that the Working Group address the following questions . . .

Developing the BMP – Initial Steps

- What work had already been accomplished in this area?
- What are the types of hazardous conditions that should be identified and managed (what constitutes a hazard tree)?
- What should the scope and frequency be for inspections to identify hazard trees?
- Is there a necessary and acceptable level of risk or tolerance for hazard trees?

Developing the BMP – Initial Steps

- What are the most effective methods that should be used to identify and evaluate hazard trees?
- What are the thresholds or triggers for mitigation?
- What type of mitigation should be used, and where?
- What are the expected costs associated with the implementation of BMPs?

BMP Development Process

Some of the steps taken by the Team Lead and Working Group in order to move the process forward were . . .

BMP Development Process

- Develop a questionnaire to gather opinions from the Working Group on the relevant issues
- Convene BMP development workshops
- Review issues and questionnaire responses
- Gain consensus on the list of relevant issues that should be addressed in the BMP
- Open each issue to the floor for discussion
- Gain consensus where possible on each individual issue
- Assign unresolved issues to sub-committees for recommendations as appropriate

BMP Development Process

- To augment the Working Group, opinions were also gathered from others in the industry through the UAA website

The screenshot shows the homepage of the Utility Arborist Association (UAA). At the top left is the UAA logo, which includes the text 'UTILITY ARBORIST ASSOCIATION' and 'UAA'. To the right of the logo is a horizontal strip of seven small images showing utility workers performing various tasks. Below this strip is a navigation menu with links: 'UAA Home', 'About The UAA', 'Contact Us', 'Search', and 'Members Area'. The main content area features the title 'UTILITY ARBORIST ASSOCIATION' in large green letters. Below this is a section titled 'WHAT'S NEW?' with a green background. The text in this section reads: '- ISA Launches True Professionals Program - Nominate a True Professional'. Below this, it says: 'Need ISA CEUs? Now you can get them here at the UAA Website. Click here to get started with the UAA quizzes and earn those ISA CEUs.' There are also links for 'Upcoming Meetings and Conferences'. To the right of the main content is a sidebar titled 'UAA SPONSORS' with three levels: 'GOLD' (featuring the Davey logo), 'SILVER' (featuring the BASF logo), and 'BRONZE' (featuring the APS logo). Other sponsors listed include Dow AgroSciences, SDGE, and Sempra Energy utility. On the left side of the page, there is a vertical menu with links: 'Industry News', 'Book Store', 'ISA CEUs', 'Job Bank', 'Laws and Regulations', 'Meetings and Conferences', 'Presentations', 'Research', 'Resources', and 'Members Area'. At the bottom left, there is a small logo for 'GreenSource'.









BMP Development Process

- Results from the UAA website survey were reviewed by the Working Group and used as part of the decision making process

HAZARD TREE IDENTIFICATION PROTOCOL SURVEY RESULTS

3. In your opinion, what would be an adequate patrol or inspection cycle to identify hazard trees under or adjacent to power lines?

 Custom Analysis Options

| Frequency Analysis | | | |
|---|-----------|------------------------|---|
| Answer | Count | Percent | |
|  1 year or less | 19 | 45.24% |  |
|  2 years | 16 | 38.10% |  |
|  3 years | 4 | 9.52% |  |
|  4 or more years | 3 | 7.14% |  |
| Total | 42 | 100% | |

| Key Analytics | | |
|---------------------------|---------------------------|---|
| Mean | 1.786 | Key Facts 83.33% chose the following options : 1 year or less 2 years Least chosen option 7.14% : 4 or more years |
| Confidence Interval @ 95% | [1.514 - 2.057] n = 42 | |
| Standard Deviation | 0.898 | |
| Standard Error | 0.139 | |

Issues Addressed in the BMP

The Working Group discussed, at length, which issues should be addressed in the BMP, with the following result . . .

Issues Addressed in the BMP

The Working Group's opinion was that each utility should develop a hazard tree plan that, at minimum, would address . . .

- Identifying hazard trees
 - Defects that should be considered a hazard
 - Assessing severity or failure potential
 - The trigger for a detailed tree inspection
- Frequency of patrols – High-voltage lines
 - Possibly a multi-tiered approach



Issues Addressed in the BMP



- Frequency of patrols – Low-voltage lines
 - Defined by individual utilities
- Scope of patrols
 - All trees tall enough to strike a high-voltage line regardless of location
 - Low vs. high fire hazard areas
- Patrol and inspection methods
 - Line patrols
 - Detailed line patrols
 - Detailed tree inspections

Issues Addressed in the BMP

- Mitigation types and thresholds or triggers
- Site considerations
- Abatement
- Worker qualifications
 - Training requirements
- Documentation



UAA Members Benefit!

- The Tree Risk Assessment and Abatement BMP will be available on the UAA website, exclusively for UAA Members!