

# Urban Forest Health Monitoring - Pilots

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# Key Players

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**Bill Smith, FHM Research – RTP, NC**

**Manfred Mielke, FHP – St. Paul, Minn.**

**Anne Cumming, U&CF – Morgantown, WV**

**Bob Rabaglia, Maryland Agric.- Annapolis, MD**

**Mike Galvin, Maryland DNR – Annapolis, MD**

**Dick Rideout, Wisconsin DNR – Madison, Wis**

**Ken Gooch, Massachusetts Parks & Forests, Amherst, MA**

**Phil Marshall, Indiana DNR – Vallonia, Ind.**

**Dave Nowak, NE Research – Syracuse, NY**

**Charlie Burnham, Massachusetts Parks&Forests, Amherst,**

**MA**

**Helen Butalla, FHP – Morgantown, WV**

**Phillip Rodbell, U&CF – Newtown Square, Pa**

**Bill Burkman, NC Research – St. Paul**

# What will be discussed

**Forests and non-forests**

**Data gaps**

**Urban and non-urban**

**Inventory plots**

**Extending the grid**

**Forested inventory plots and non-forested inventory plots.**

**Roadside or street trees**

**Right of ways**

# Two urban pilots

- urban forest health monitoring
- Urban roadside tree monitoring

# The urban forest monitoring pilot



# Definition of forest

- One acre in size
- At least 120 feet wide
- And at least 10% stocked with trees
- Forest plots have an under story that is undisturbed by another land use

# Data Gap

A classification of “non-forest” does not mean an area is devoid of trees

- Urban areas
- Agricultural lands
- Riparian areas



# The urban forest monitoring pilot

- Define urban
- Select non-forest urban FIA/FHM plots
- Add urban variables to measurement suite
- Collect the data
- Merge data with forested FIA/FHM plots

# Urban Areas

- Urbanized areas have a population of 50,000 or more and a minimum density of 384 per square kilometer
- Places are concentrations of people that contain some urbanized area
- Urban places have at least 2,500 people, but are outside of urbanized areas

- Provide state level data on urban forest structure, health, functions, and benefits
- Provide information on urban forest change
- Detection of new pests and potential problems
- Pilot projects are hoped to lead to a nationwide monitoring program to allow for compilation of regional and national trends

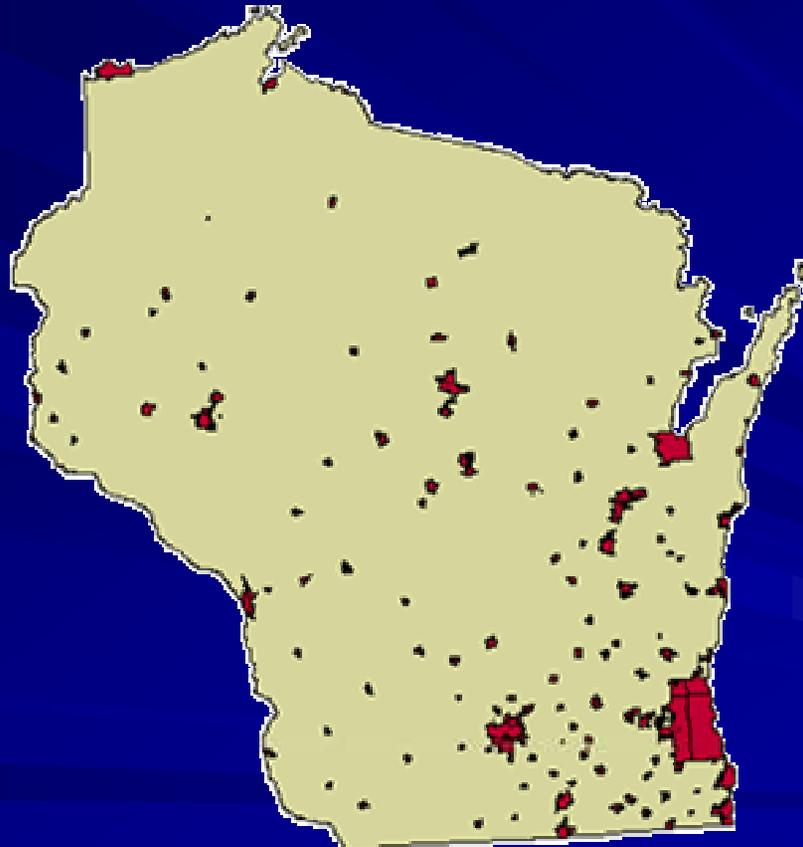
# UFORE –URBAN FOREST EFFECTS

- Energy conservation
- Air pollution
- Greenhouse gas mitigation
- Pollen levels

# The Urban Forest Health Monitoring Pilots

- Indiana
- Wisconsin
- New Jersey

# Urban areas in Wisconsin





# Wisconsin

## Land use of non-forest plots

Residential –	32%
Right of way -	13%
Commercial -	12%
Denied access	11%
Institutional -	7%
Agriculture -	6%

# Results

■ Wisconsin

Non-forest

Forest

Trees/acre

39

371

Basal area

13

66

# Tree species

## Non Forest

**Box elder (13%)**

**White ash (13%)**

**Green ash (5%)**

**Red maple (5%)**

**White spruce (5%)**

## Forest

**Hawthorn (14%)**

**Quaking aspen (10%)**

**Mountain maple (8%)**

**Green ash (7%)**

**Am.Basswood (6%)**

# Damage

No damage      Most common  
   damage

Box elder	81%	Conks (11%)
Wh. Ash	74%	Vines (18%)
Gr. Ash	82%	Dead term (1%)
Red maple	86%	Conks (1%)

# Urban damage

- Confined space – elm, buckeye
- Poor pruning – redcedar, norway maple, norway spruce, white spruce
- Topped tree – redcedar
- Codom. lead/incl. bark – norway maple

# Status

- UFM is complete in Indiana – 1 panel.
- UFM is complete in Wisconsin  
data merging  
UFORE  
Rpt
- UFM in NJ - underway

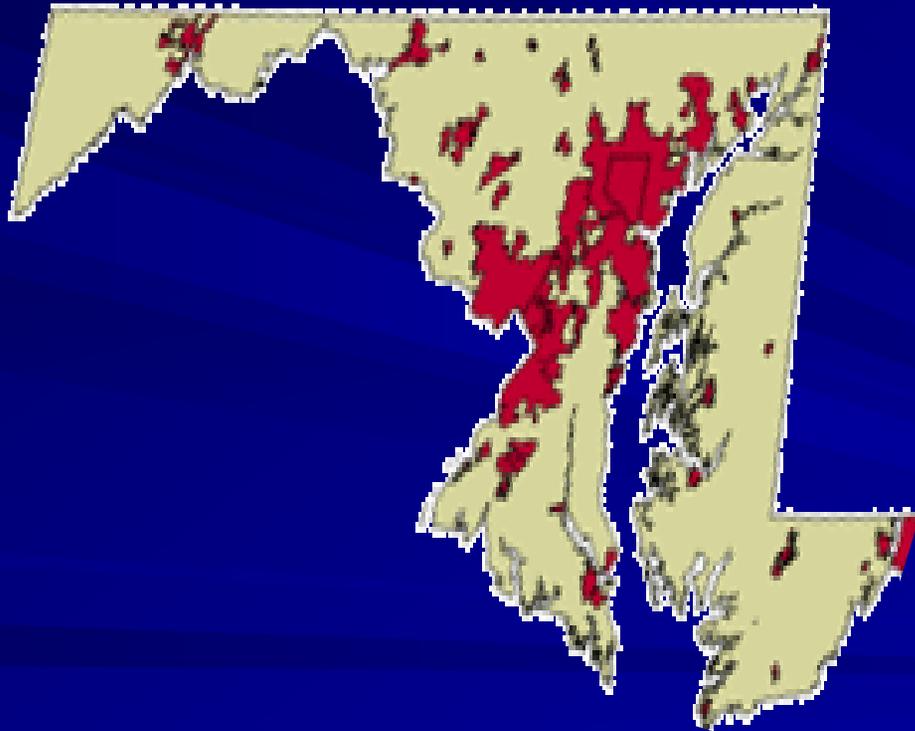
# Urban State-wide Street Tree Monitoring

- Goal: Monitor street tree populations at the state level
- 300 plots established in state as baseline
- Plot: 4 sub-plots (181.5 x 10'), 2 on each side of road
- No divided highways, private communities, interstate access ramps or military installations
- Sub-sample of plots revisited annually

# Street Tree Monitoring

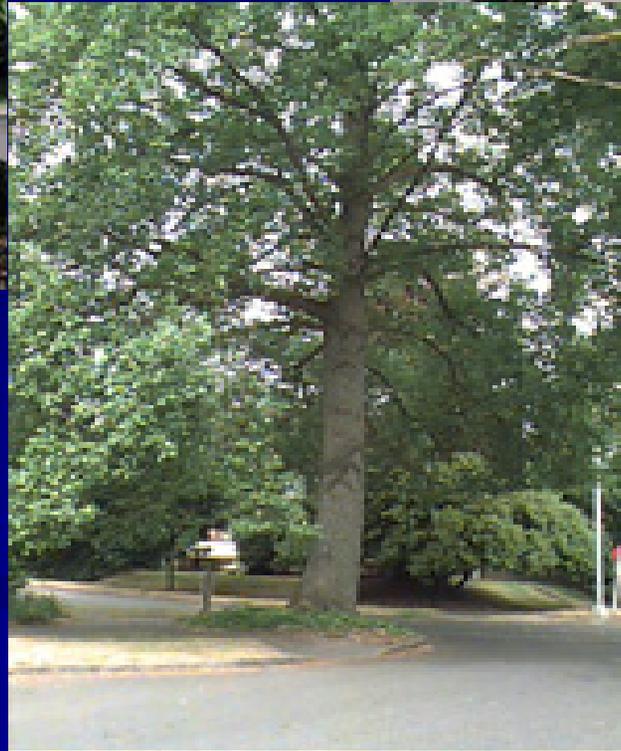
- Maryland
- Wisconsin
- Massachusetts

# Urban areas in Maryland



# Roadside or street trees

- In the public Right of Way
- And traditionally are the trees the municipal or urban forester is responsible for in terms of management and protection.

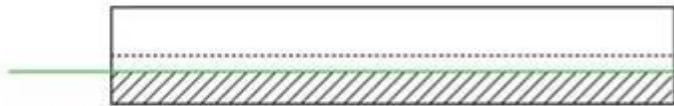


1

2

$$.26 \times 20 = 5.2$$

$$.71 \times 20 = 14.2$$



$$.83 \times 20 = 16.6$$



$$.09 \times 20 = 1.8$$

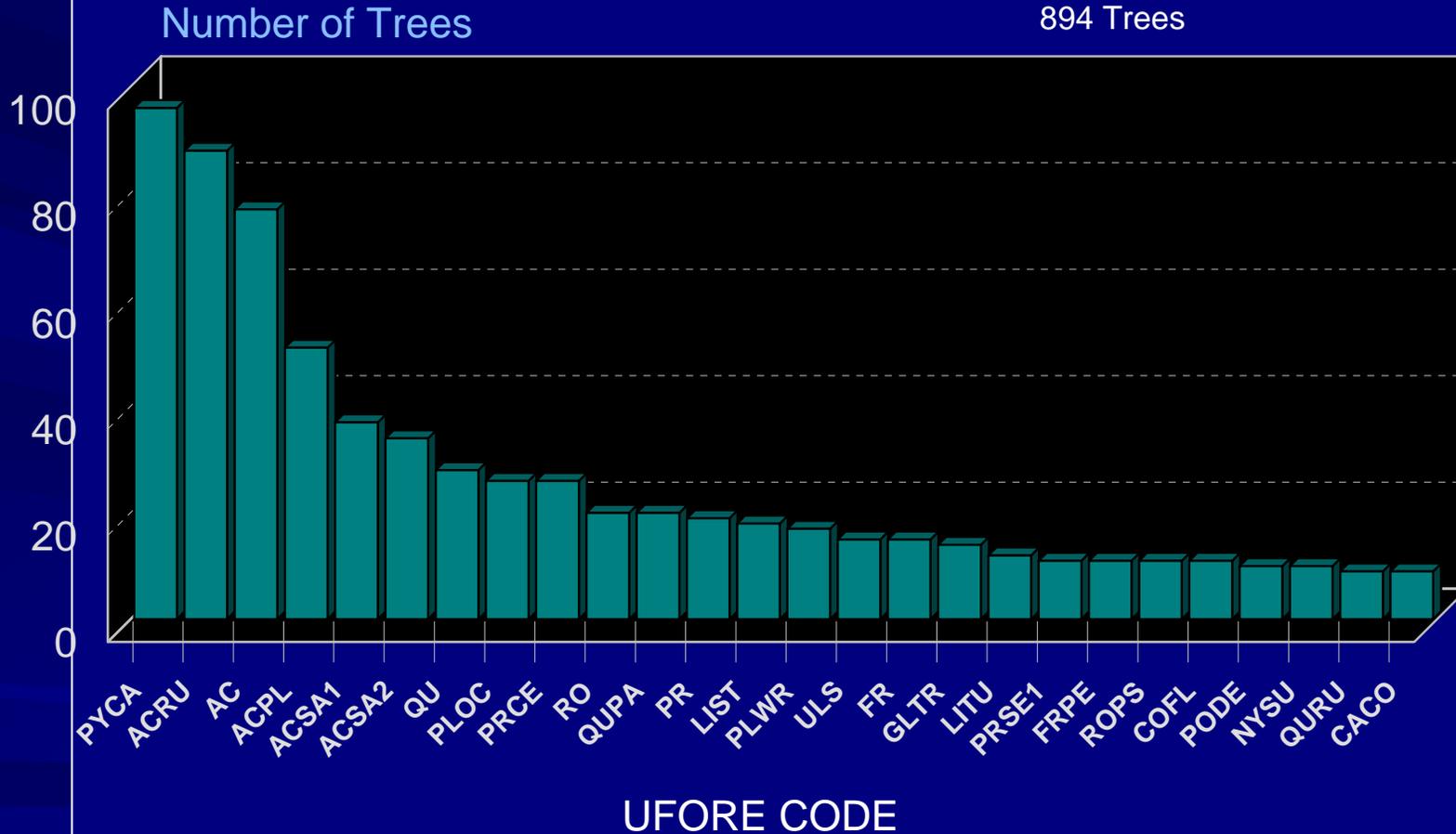
4

3

# Maryland 2001 Roadside Tree Survey

Top 24 Trees in Survey

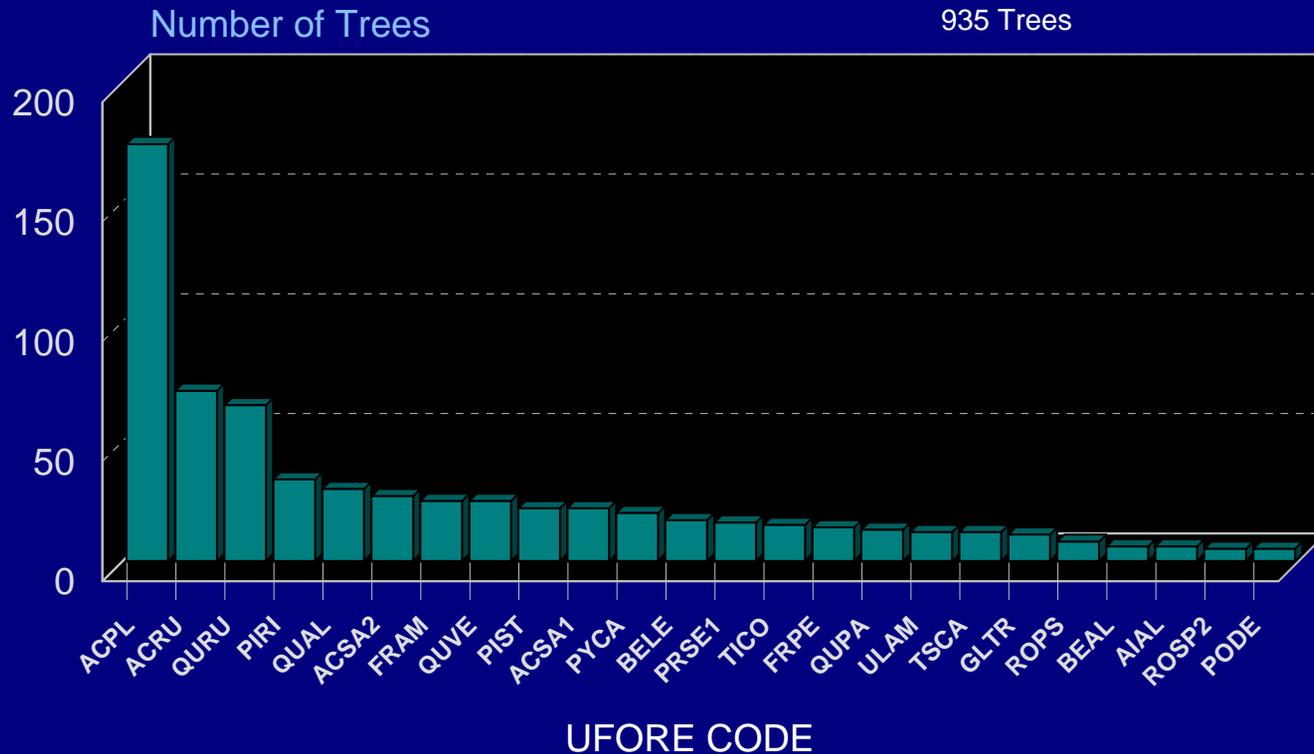
295 Plots  
112 Plots with trees  
894 Trees



# Massachusetts 2002 Roadside Tree Survey

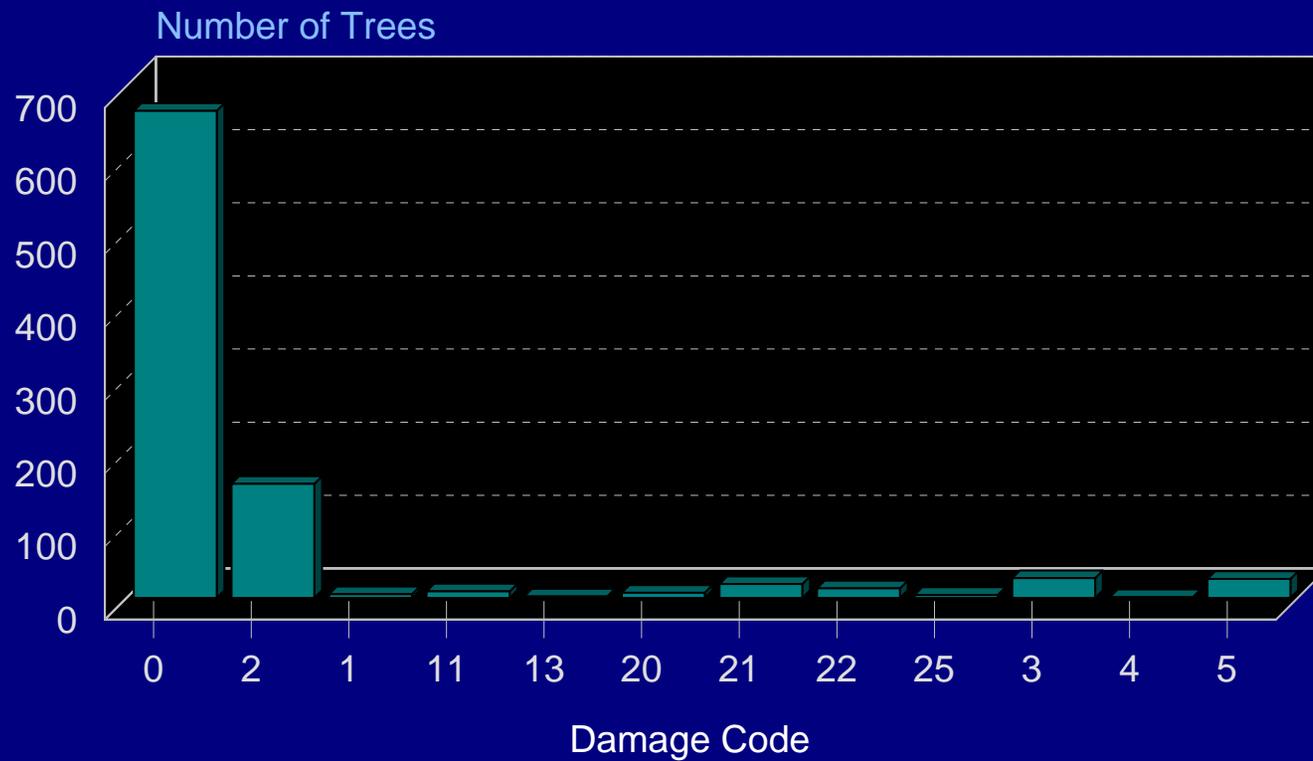
Top 24 Trees in Survey

298 Plots  
124 Plots with trees  
935 Trees



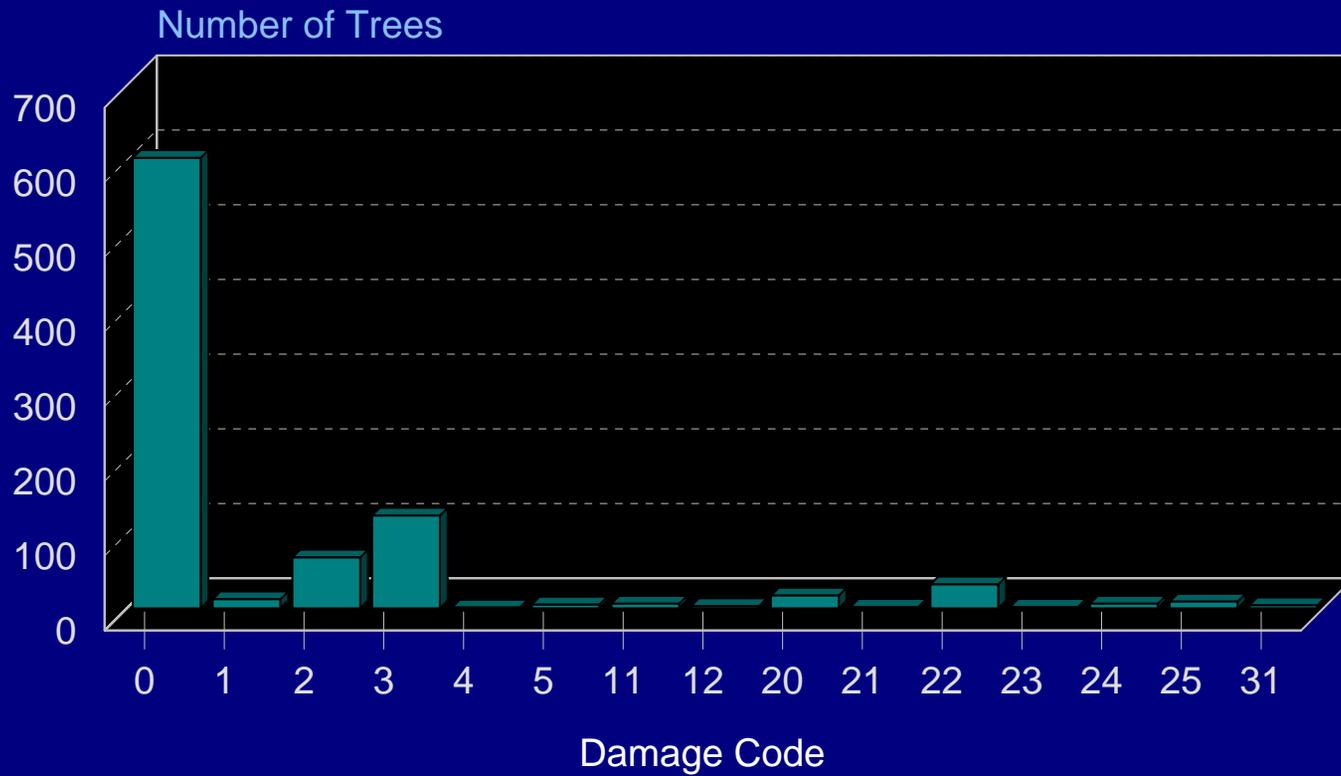
# Massachusetts 2002

## Damage 1

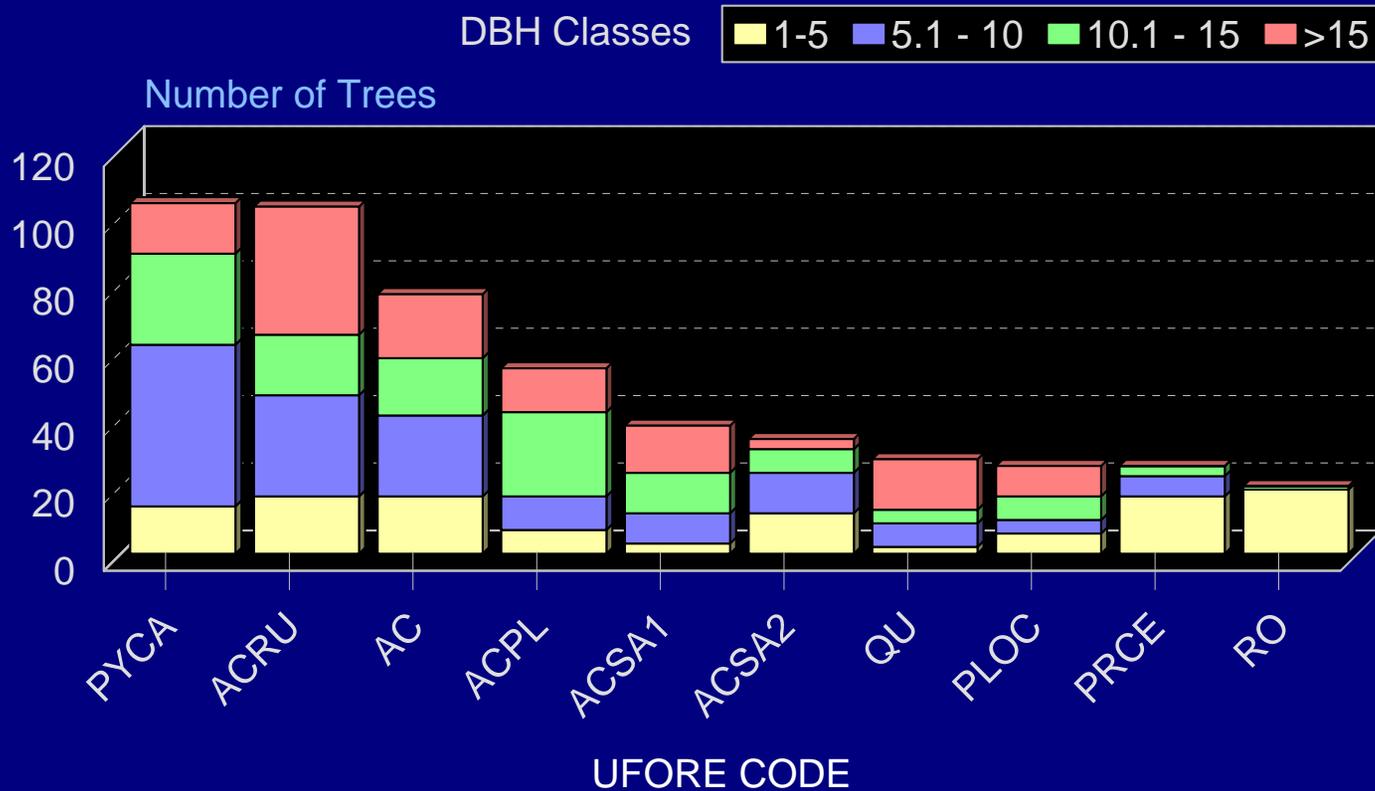


# Maryland 2001

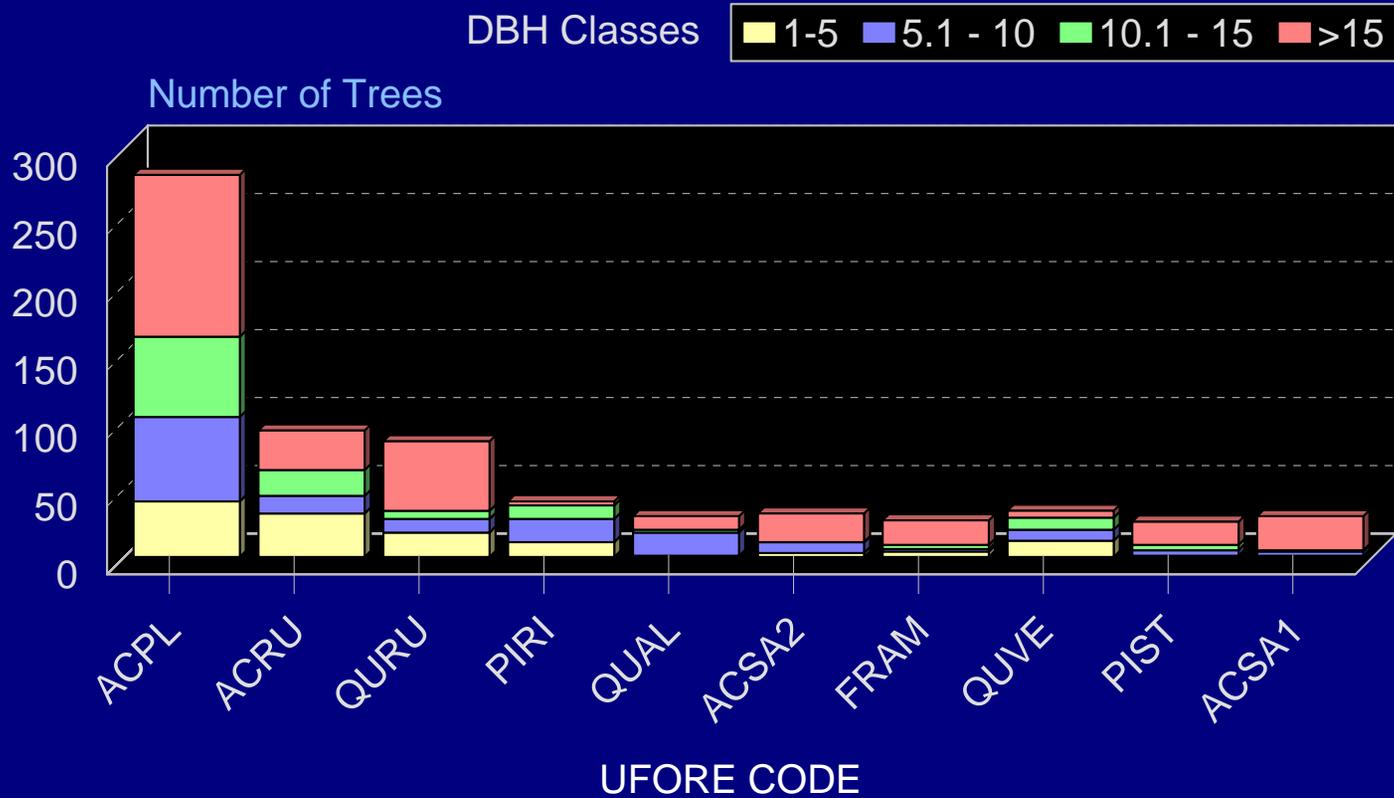
## Damage 1



# Maryland 2001



# Massachusetts 2002



# Status

- The Roadside Tree surveys in MD and Mass are done- now revisiting plots
- Publish roadside reports for MD and Mass.
- Produce new Street Tree Manuals
- National Implementation Plan

# The Need for This Information

- FIA
- FHM
- CFHP
- U&CF
- State Foresters
- City Planners & Managers