Forest Health Monitoring

Program Highlights

Borys M. Tkacz
National Program Manager

2006 Program Highlights

- Management Team
- Detection Monitoring
- Evaluation Monitoring
- Research on Monitoring Techniques
- Fertile Ground
- FHM Review

FHM Management Team

- Chair – National Program Manager- Borys Tkacz

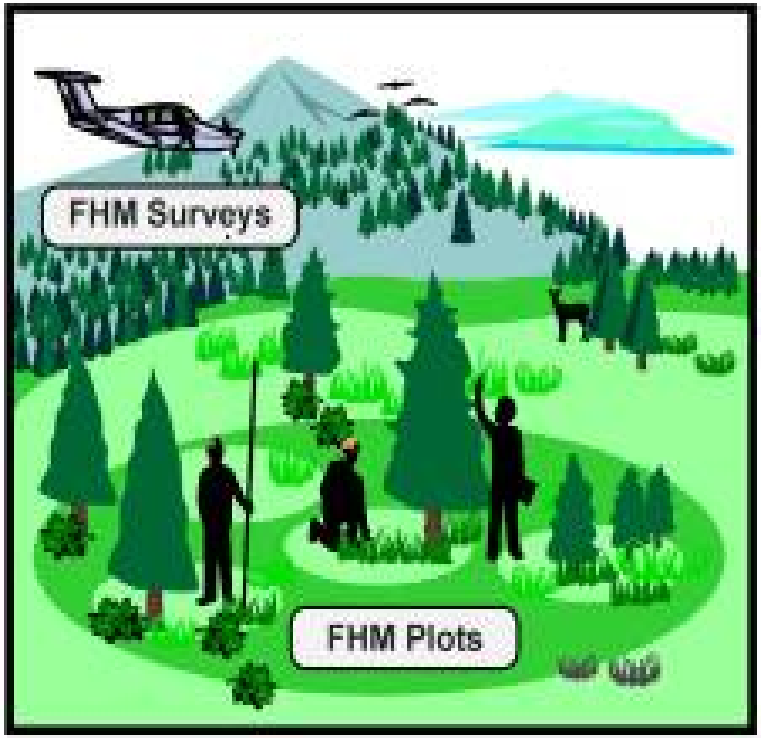
- FHP Rep. for each FHM Region
  - NE – Jim Steinman
  - NC – Manfred Mielke
  - SO – Jim Brown
  - INT –Jeri Lyn Harris
  - WC – Alison Nelson
- State Rep. for each FHM Region
  - NE – Charlie Burnham, MA
  - NC – Dave Heinzen, MN
  - SO – Ed Barnard, FL
  - INT – Tom DeGomez, AZ
  - W – Roger Burnside, AK

- FIA National Program Leader – Greg Reams
- FHM National Research Team – Bill Bechtold
- NFS EMC Rep. – Doug Powell
- FHTET – Frank Sapio
- R&D VMPR Rep.- Vacant

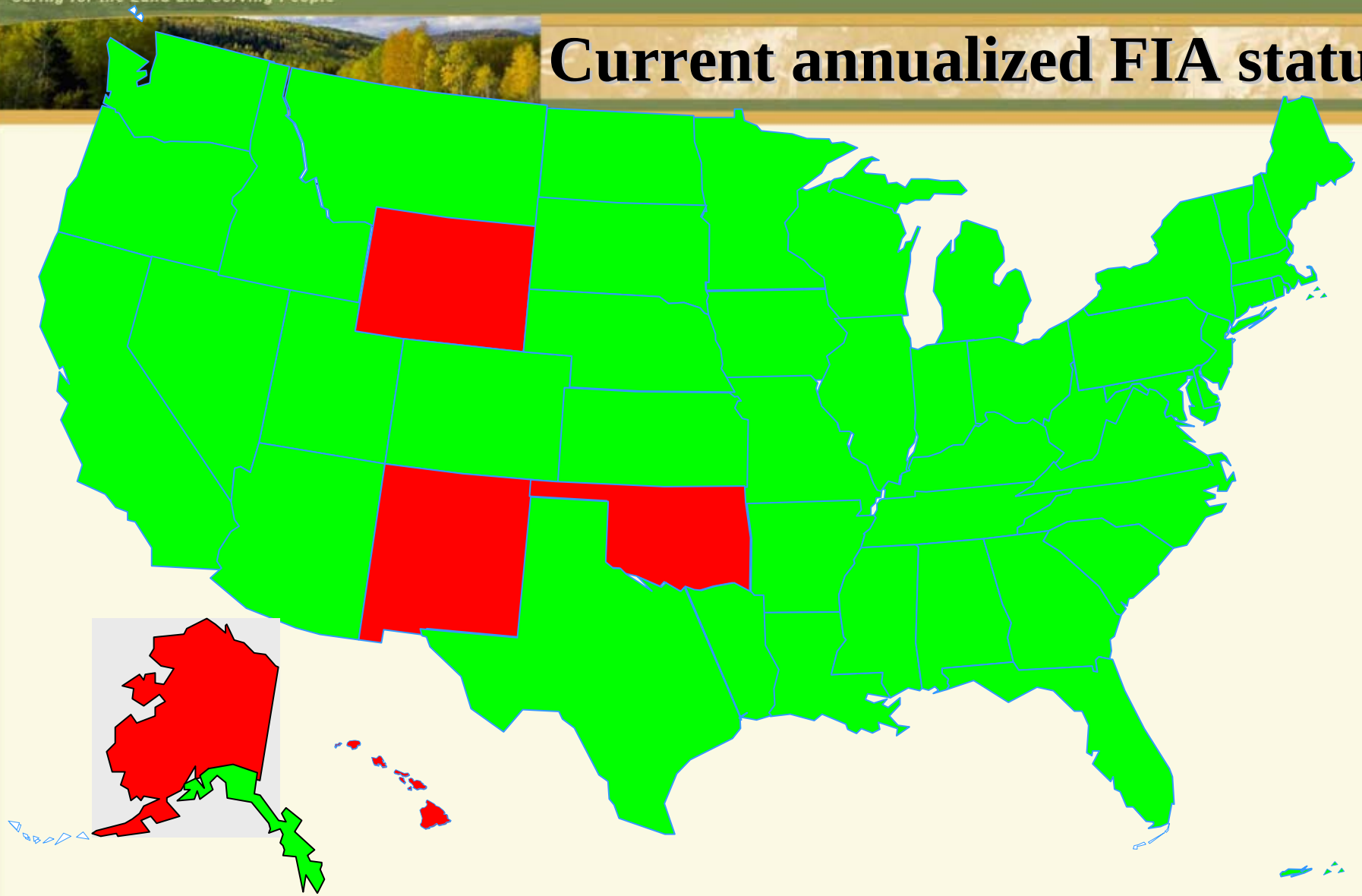
Detection Monitoring

Purpose of Detection Monitoring

- Establishes baseline conditions for analysis of future changes & trends
- Identifies location & extent of areas with forest injury or mortality
- Triggers suppression or evaluation monitoring actions



Current annualized FIA status

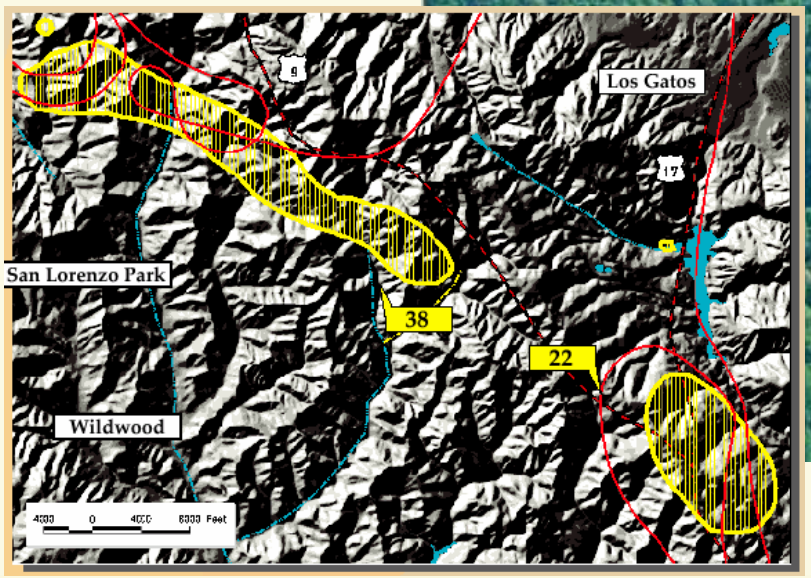


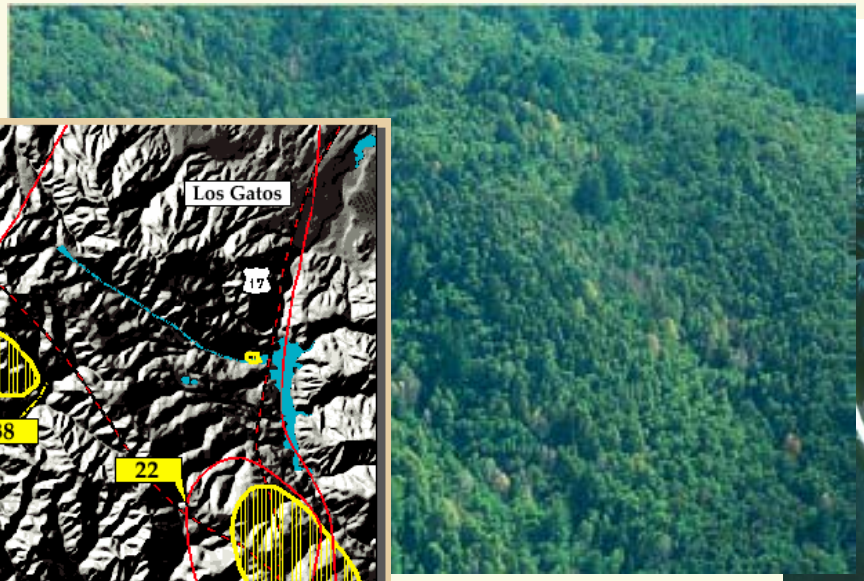
Implemented

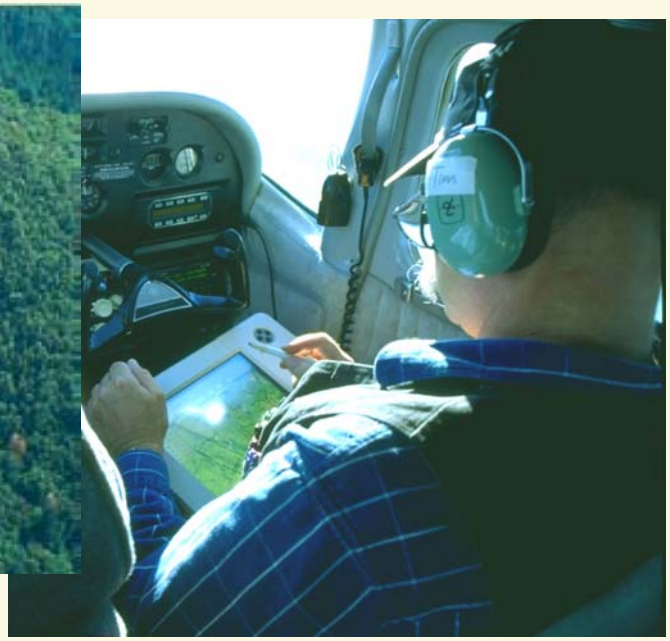
Not Implemented

Detection Monitoring

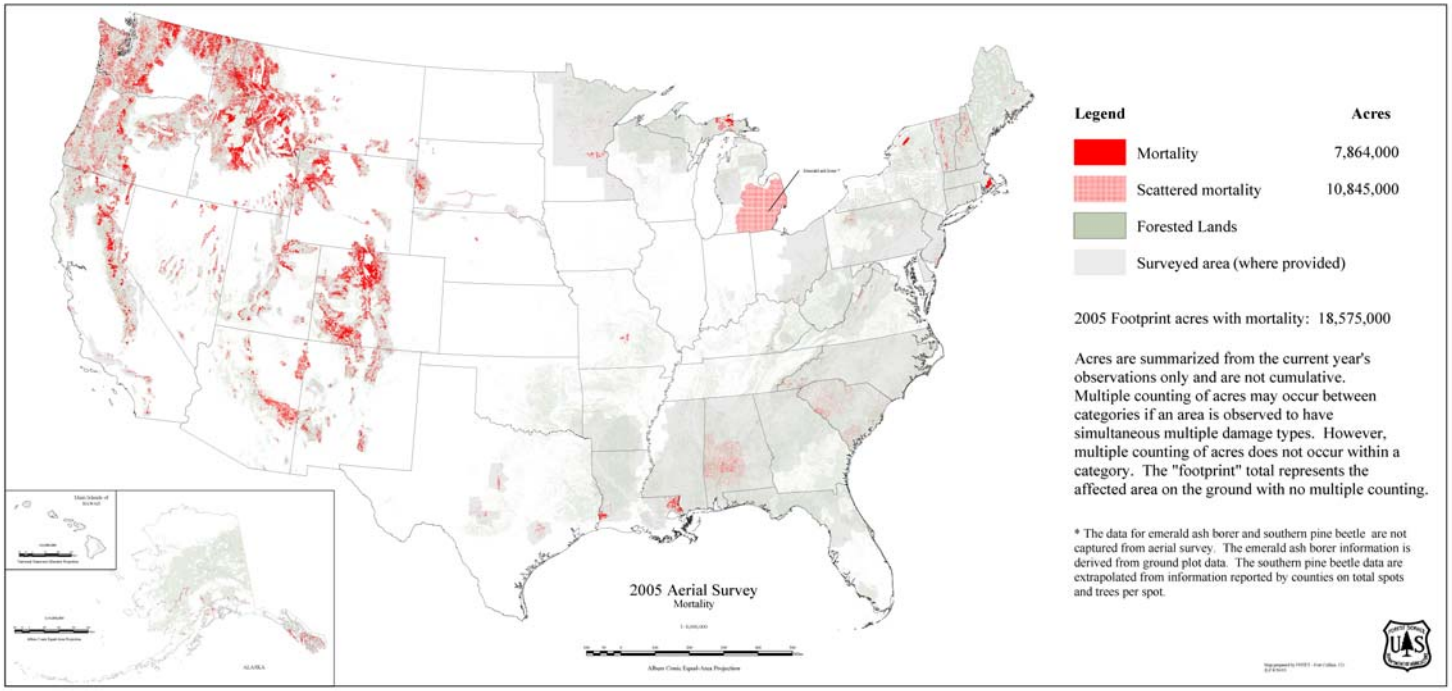
- Aerial surveys – detect visible damage to tree crowns from insects, diseases, and weather; may be conducted annually or seasonally based on local needs

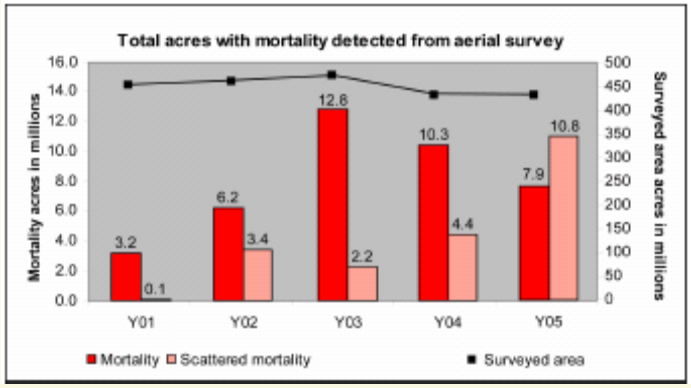






2005 Aerial Survey Results





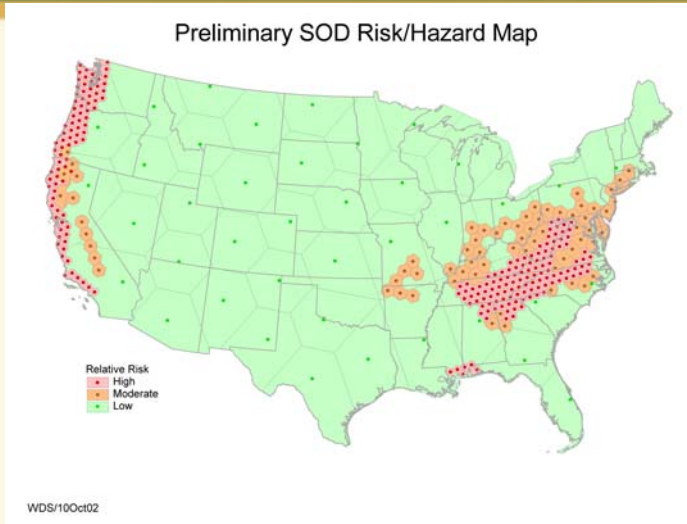
Detection Monitoring

- Special detection surveys – monitor spread of damage agents such as invasive exotic species

  - *Phytophthora ramorum* (SOD)

    National Detection Survey

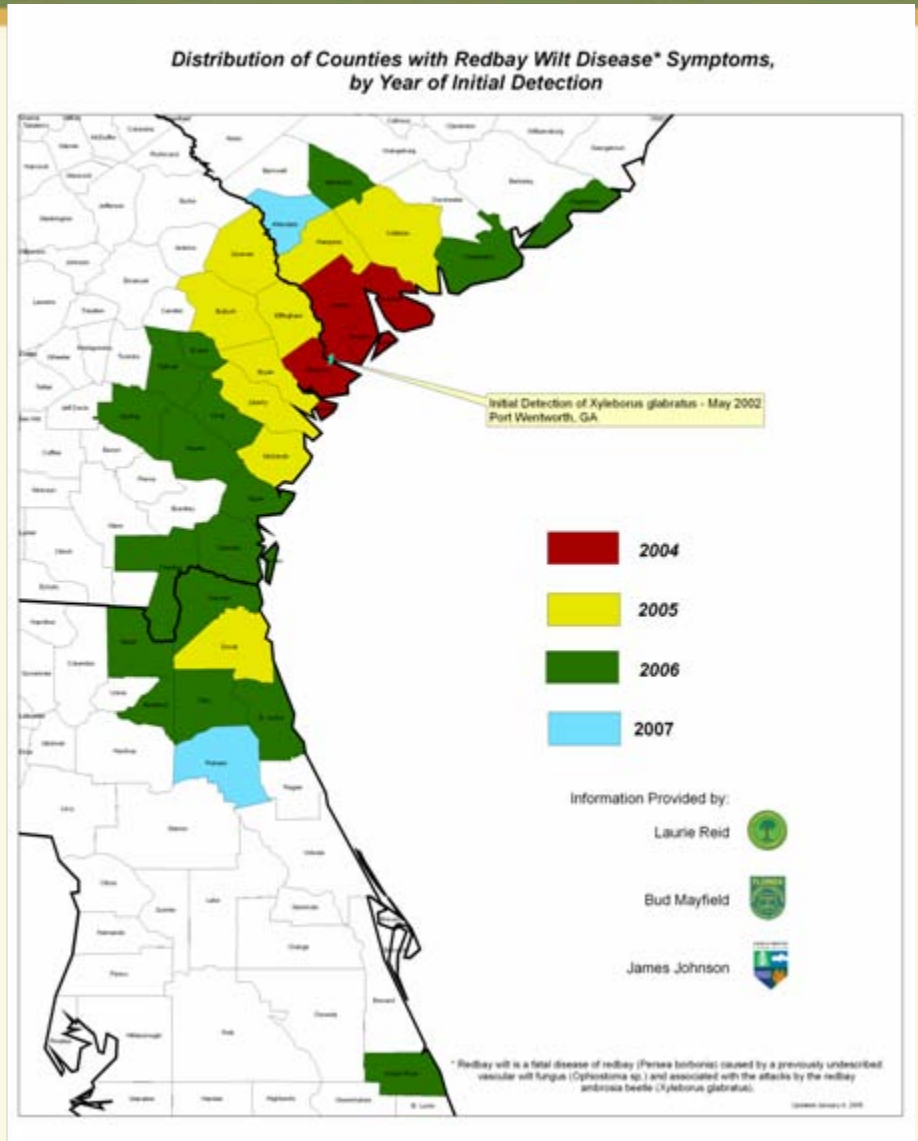
    - SOD risk map
    - Detection protocols for field surveys
    - Stream bating



Special Detection Surveys

Red Bay mortality –

- exotic ambrosia beetle *Xyleborus glabratus* vectoring *Ophiostoma sp.* in Southeastern coastal states, killing red bay, sassafras, and other Lauraceae



Detection Monitoring

- Special detection surveys

Ohia rust – a new race of *Puccinia psidi* affecting Ohia, Hawaii's most common forest tree

Evaluation Monitoring Projects 2007

BASE

- Mountain Pine Beetle - INT
- Wolves and Aspen Decline in AZ – INT
- Limber Pine Health – INT
- Aspen Mortality in Rockies – INT
- Balsam Wooly Adelgid in ID – INT
- Spruce Beetle - INT
- Black Ash Decline – NC
- White Ash Decline – NC
- Hickory Decline - NC
- Crown dieback of white cedar - NE
- Interfering Shrub Species – NE
- Beech Bark Disease on ANF - NE
- Drought Impact - SO
- Oak Decline – SO
- Yellow Cedar Decline in AK – WC
- Lichens and Nitric Acid in CA – WC
- Balsam Wooly Adelgid in Eastside OR and WA - WC

FIRE PLAN

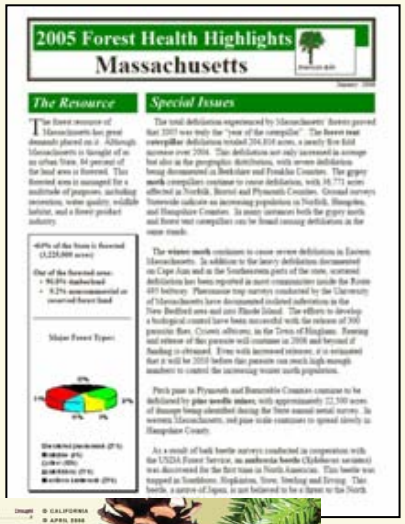
- Whitebark Pine Regeneration after Fire - INT
- Aspen Decline– INT
- Fire implications of mountain pine beetle in LPP – INT
- Tree deterioration after fires – INT
- Bark beetles and fuel loading – INT
- Fire and Ponderosa Pine beetles – INT
- Fire spread and intensity – INT
- Mercury in forest floor - NC
- Fire and oaks in IA and MO – NC
- Invasive plants in southern Appalachians – SO
- Fuel characteristics in southern Appalachians - SO
- Estimating snags with aerial survey data – WC
- Ecological impacts of invasive species after fire - WC

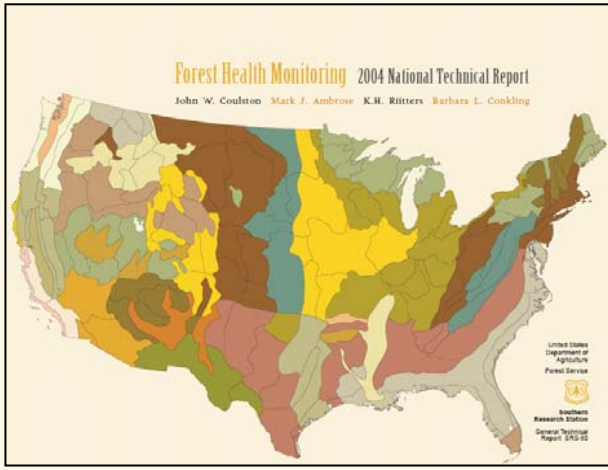
Urban Forest Health Monitoring

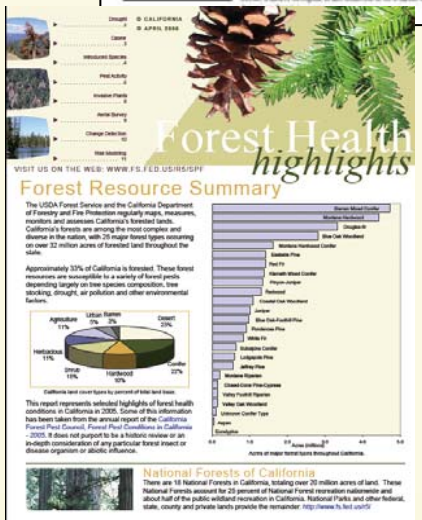
- Urban Forest Inventory
  - Extend FIA sampling grid into urban areas
  - Pilots conducted in NJ, IN, WI, TN, CO
- Statewide Street tree assessments
  - Modify sampling to characterize trees along public streets
  - Pilots conducted in MD, MA
- Draft National Implementation Plan developed by U&CF
- 2006 –FIA Urban Task Team working on logistical issues – PDA, Manuals, Training

Reporting Highlights

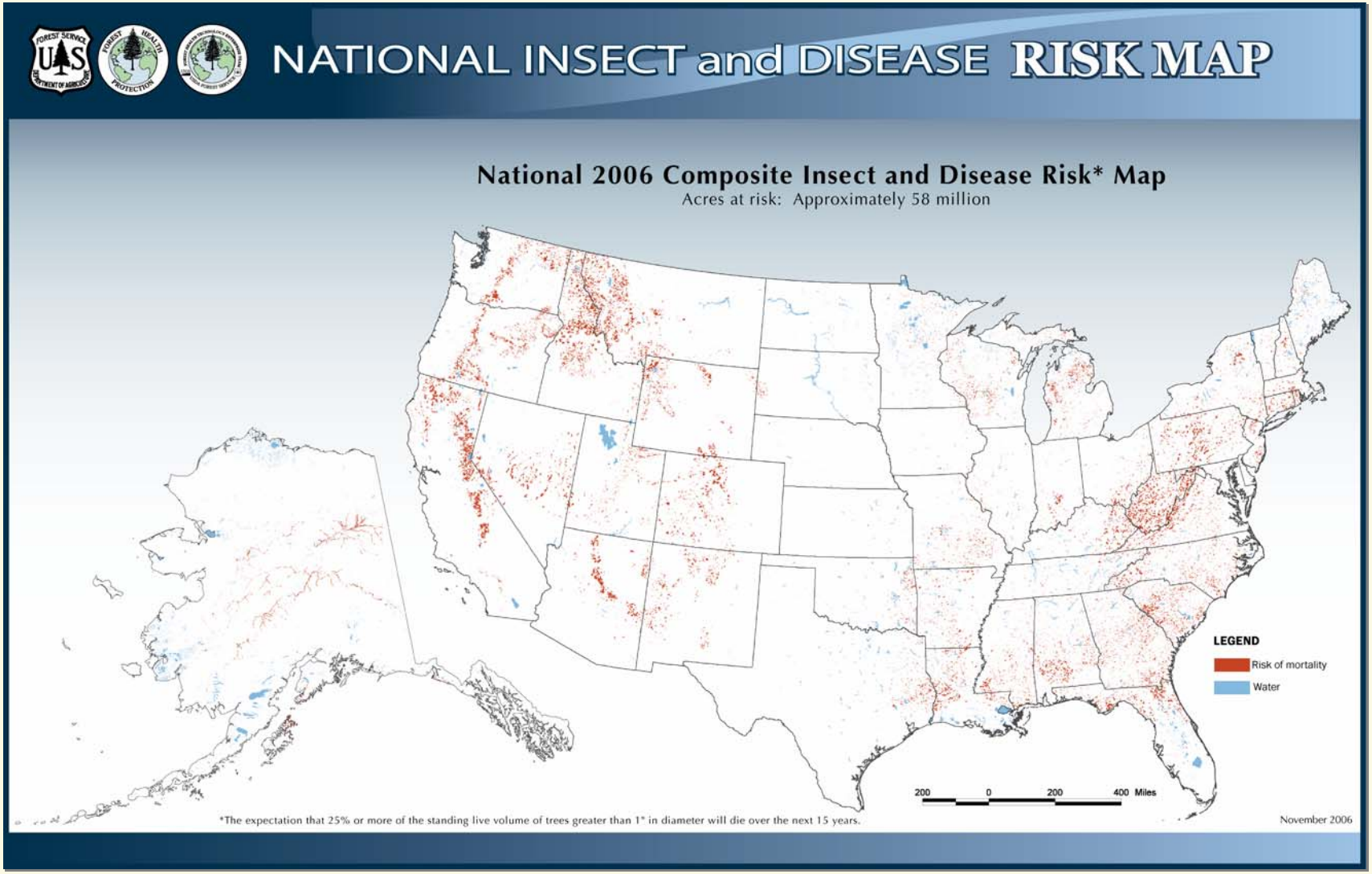
- National Reports
  - FHM National Technical Reports
    - 2004 published
    - 2005 in press
- State Reports
  - Forest Health Highlights
  - FHM sections in FIA Reports
- FHM Website – http://fhm.fs.fed.us







National Insect and Disease Risk Map



Fertile Ground for FHM

- Standardize detection methods
- Synthesize lessons learned from EM
- Validate risk assessments
- Develop new techniques and technologies

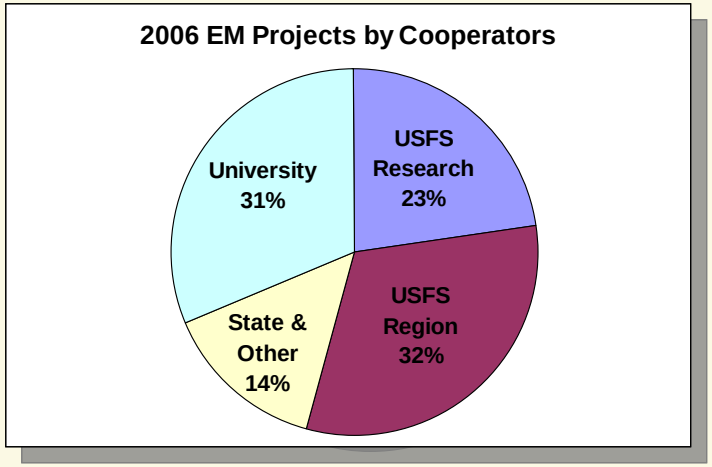
Sapio, Heinzen, and Nelson

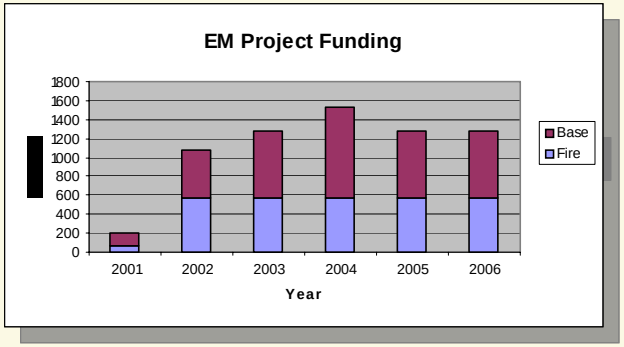
Fertile Ground for FHM

- Standardize Detection Methods Nationally
  - New invasives – from on-plot or off-plot, use of Risk Map, Evaluation Monitoring products
  - Cryptic organisms
    - No signs or subtle symptoms
  - Programmatic, standardized approach for urban communities
  - Standardized approach for off-plot ground surveys
  - Develop ADS collection and ground truth standards
  - Utilize risk maps in survey methodology

Extract Value and Direction from Past Investments

- Synthesize and Report Lessons Learned from Evaluation Monitoring
  - Evaluation Monitoring Portfolio
    - How many Projects
    - Project characteristics
    - How many Dollars
    - Summarize value gained
    - Develop New Focus Areas
      - Feedback loop





FHM Assessments and Projections
How good are they?

- Validate FHM and Partners' Risk Assessments (Maps and Models)
  - Insect and Disease Risk Map
    - Plots?
    - Aerial Survey
  - Air pollution
    - Look at FIA data, Evaluation Monitoring and compare with models
  - Climate change
    - Look at FIA, Aerial Survey data and compare with models
- Report and Refine Assessments

Continue Product Line Development

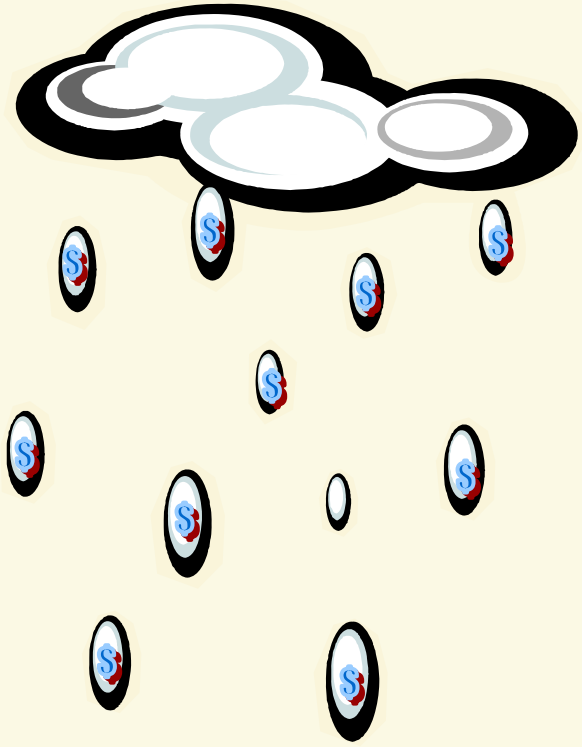
- Develop
  - Enhanced I&D Risk Map(s)
    - Lessons, New Tools, Better Base Data on the Way
      - Need to coordinate Individual Model Development
    - Invasive Plant Risk Maps
  - New Diagnostic Techniques
    - Molecular
      - Bench Top and Field
  - Early Detection Technology for Cryptic Organisms
  - Develop National Surveillance Program for Invasives in Urban Communities
    - The “Forest” as a Continuum
    - Coordinate with Partners
    - Standardize Data, Data Storage and Field Methods

Implement Product Line

- Implement Developments
  - Enhanced Risk Maps
  - New Diagnostic Techniques
  - Early Detection Technology for Cryptic Organisms
  - National Surveillance Program for Invasives in Urban Communities

Challenges

- Complete Geographic Representation
- Focused Involvement
- Need Broader Research Involvement
- More Partnerships, More Cooperation
- Lack of Adequate Resources
  - Rain



Forest Health Monitoring

Program Review

Arlington, VA
October 31- November 2, 2006

Steve Patterson
Deputy Director, SPF
Alaska Region