



Forest Health Protection

Who are we and What can we do for you?

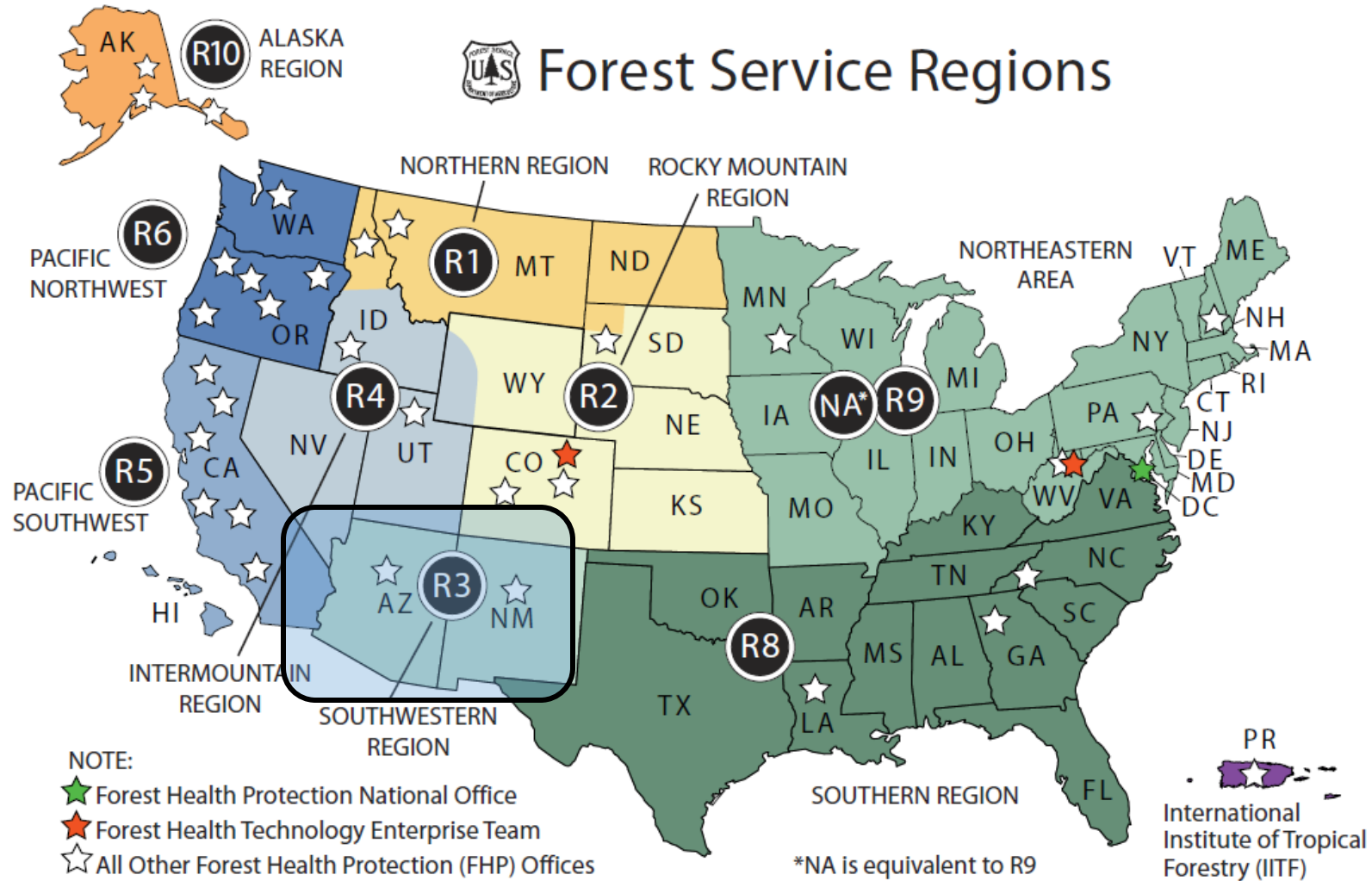
Amanda Grady

Entomologist, Defoliator Specialist

Forest Health Protection (2009) Arizona Zone, Flagstaff AZ (2011)

Intertribal Agriculture Council Conference
September 21, 2016

Forest Health Protection Offices





Where is FHP within the Forest Service?



Our primary responsibilities

- Technical assistance – Insect & disease ground surveys, impact evaluations and management advice
- Training – formal and informal training sessions
- Prevention & suppression– oversee prevention (NFS lands only) & suppression projects
- Forest Health Monitoring – Aerial Detection Survey special evaluations of insect and disease impacts
- Technology development & transfer – improve techniques for managing insects & disease

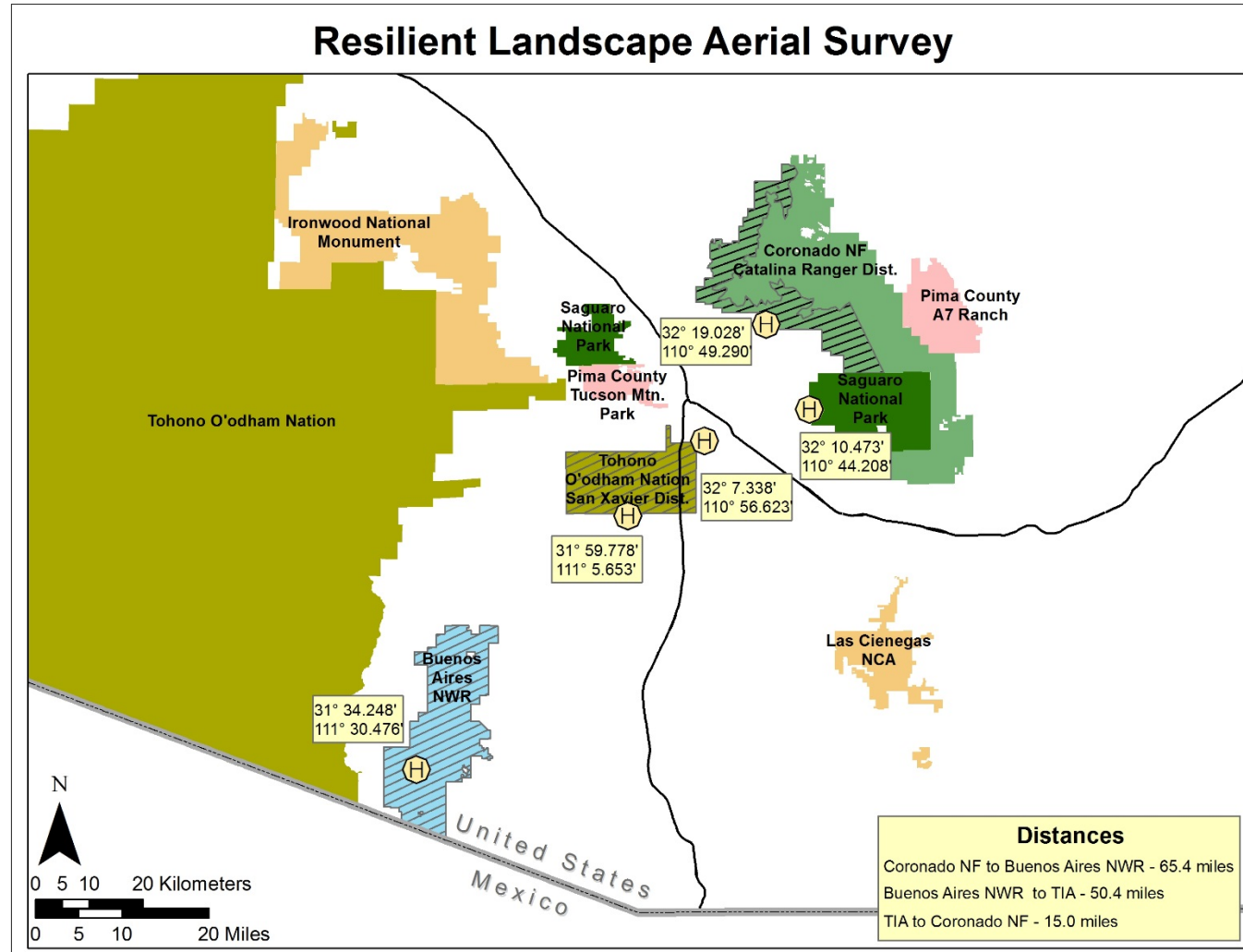
Technical Assistance to Tohono O'odham



- Training on mapping hardware and software
- Buffelgrass aerial surveys



Detection Monitoring & Training



Interagency Buffelgrass Mapping Training

Draft Agenda

Dates: July 26-28, 2016

Location: Southern Arizona Rescue Association Building at the Sabino Canyon Fed Complex

July 26th Full training day 8:15-4:45

- AM:** Welcome and housekeeping, introductions project overview, roles and responsibilities, training requirements (agency specific).
Introduction to aerial mapping, review of 2012 implementation.
Discussion on agency objectives (grasses to map) attribution/keypad.
GeoLink and equipment basics, getting new licenses installed or updating software to the correct version.
- PM:** Sabino Canyon project building: File structure, background imagery, key pad and gps/com port connections, data collection (walking exercise).

July 27th Full training day 8:15-4:45

- AM:** Recap and QA on project building and data collection walking exercise.
Data collection on Tram up the canyon.
- PM:** Post processing the data and post flight data clean up. Discussions on patch sizes mapping attributions.
Begin agency specific project building. Running/stitching imagery gor files together overnight.

July 28th Final training day

- AM:** Survey protocol discussion and decisions.
Continued survey area imagery processing and project building if necessary.
Questions & answer session.



An aerial photograph of a forest landscape. The forest is composed of many tall, thin trees. A significant portion of the trees are dead, appearing as light brown or grey vertical trunks against the green foliage of the living trees. The dead trees are scattered throughout the forest, with some areas showing higher concentrations.

Technical Assistance to White
Mountain Fort Apache BIA &
Tribal Forestry

August 2015

Spruce aphid:
Elatobium abietinum
Hosts: Engelmann &
Blue spruce



April 2015



Spruce aphid, *Elatobium abietinum*



Symptoms:

Brown/chlorotic crown

Needle drop under sparse canopy

Only current years needles in tact

Signs:

Small soft bodied green aphids

Populations highest in fall



White Mountain Apache Tribal Lands



2015 Insect and Disease Aerial Survey Results

Spruce Aphid Activity

The spruce aphid caused more damage on White Mountain Apache lands than any other damage agents detected during the 2015 aerial surveys. Defoliated spruce trees were mapped on 8,278 acres (Figure 1). Most of the damage is located on the slopes of Mount Baldy (Figure 2). The consecutive mild winters have allowed the populations to build and now the aphid is causing severe damage across the White Mountains. During past outbreaks more than 100,000 acres have been impacted in a single year.



Figure 1. Spruce aphid damage on White Mountain Apache tribal lands, 2015.

Aspen Defoliation

The number of acres affected by aspen defoliation decreased in 2015. Surveyors mapped 2,976 acres compared to 4,467 acres in 2014 (Figure 3). Agents that may have contributed to aspen defoliation include; the western tent caterpillar, large aspen tortrix and foliar disease such as Melampsora rust and Marssonina (Black leaf spot). Additionally, 680 acres of aspen decline were mapped on White Mountain Fort Apache tribal lands in 2015.

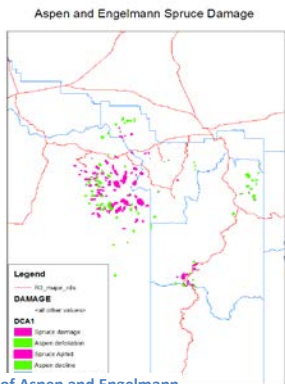


Figure 2. Map of Aspen and Engelmann Spruce damage on Mount Baldy.

Aspen Defoliation

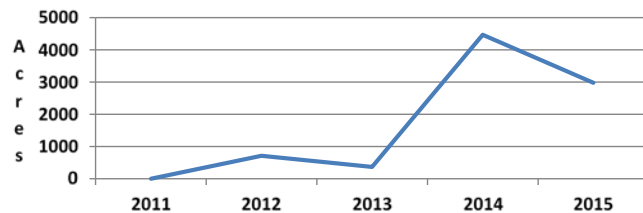


Figure 3. A five year review of aspen defoliation on White Mountain Apache tribal lands.

Other Mortality Agents

- ↑ **Salt Damage** was observed on 10 acres in 2015. The damage occurred in Black Canyon along Highway 73.
- ↓ **White fir** mortality was significantly lower in 2015 with 2,023 acres mapped. Down from the 16,327 acres recorded in 2014.
- ↓ **Mountain Pine Beetle** activity, which typically impacts southwestern white pines, decreased in 2015. Only nine acres were mapped compared to 881 acres in 2014.
- ↓ **Western Balsam Bark Beetle** attacks on true firs decreased from 679 acres in 2014 to 237 acres recorded in 2015.

Defoliators

- ↓ **Douglas-fir** defoliation was observed on 120 acres of White Mountain Apache tribal land in 2015 compared to 376 acres in 2014. Possible damage agents include western spruce budworm or Douglas-fir tussock moth.

- In 2015, 8,278 acres of spruce aphid damage detected.
- Fall 2015 BIA, Tribal Forestry FHP and Rocky Mountain Research Station applied for Evaluation Monitoring (EM) funds to monitor severity and extent of the spruce aphid outbreak.
- Awarded funds in August 2016
- Hired NAU students to collect defoliation and mortality data in permanent plots looking specifically at regeneration in 25h plots.

TITLE: Monitoring spruce aphid damage in high elevation Southwest forests

LOCATION: Arizona, NFS and tribal lands

DATE: 5/15/2016-5/14/2019

DURATION: Year 1 of 3

PROJECT LEADER: Amanda Grady, FHP Region 3, AZ Zone, Flagstaff, AZ, agrady@fs.fed.us

COOPERATORS: Ann Lynch, Rocky Mountain Research Station, Tucson AZ, alynch@fs.fed.us; Ron Miller, Bureau of Indian Affairs, Fort Apache, Whiteriver, AZ Ronald.Miller@bia.gov; Elizabeth Graham, FHP Region 10, Juneau AK, eeagraham@fs.fed.us Rich Hofstetter, Northern AZ University, Flagstaff, AZ, Rich.Hofstetter@nau.edu
FHP SPONSOR/CONTACT: Amanda Grady, FHP Region 3, AZ Zone, Flagstaff AZ, agrady@fs.fed.us

PROJECT OBJECTIVES:

1. Monitor effects of the invasive spruce aphid in montane ecosystems, to incorporate effects into stand- and forest-level vegetation planning projects, and to project the effects of climate change on forest health and resiliency in fragile montane systems.
2. Provide scientific information to refine the Engelmann spruce model in R3 to include spruce aphid as an agent contributing to mortality in the next National Insect and Disease Risk Map. Including maximum mortality thresholds, and rank and weight of criteria constraining the R3 Engelmann spruce model.
3. Sample spruce aphid populations from Arizona, New Mexico, Pacific Northwest, Alaska and British Columbia to understand genetic origin of the Arizona populations, providing sequencing data to potentially identify loci that are genetically linked to traits of interest (or genes associated with adaptation to another climate/region) to inform risk of geographical spread.

Participants and instructors of the 2012 forest insect and disease training on White Mountain and San Carlos tribal lands.



2015 Forest Insect and Disease Workshop

USDA Forest Service, Southwestern Region, Forest Health Protection

Identification, Effects, and Management of Forest Insects and Diseases

October 27-29, 2015

Sandia Ranger District, Cibola National Forest

11776 New Mexico 337

Tijeras, NM 87059

Tuesday, October 27th

9:30 **District Introduction**, Acting Ranger, Sandia Ranger District

9:45 **Welcome, Introductions, Overview of Forest Health Protection**, John Anhold, USFS

10:15 **Bark Beetles**, Andy Graves, USFS

11:15 **Mistletoes**, James Jacobs, USFS

12:00 **Field Trip**, Lunch at the Crest (Bring your own)

Visit field sites to look at insect and disease damage along the Sandia Crest Highway (NM-536)

4:30 **Return to District Office**

5:00 **Adjourn**

Wednesday, October 28th

8:00 **Review and Discussion**, Group

8:15 **Root and Stem Decay**, James Jacobs, USFS

9:00 **Defoliators**, Amanda Grady, USFS

10:00 **Break**

10:15 **Stem Rusts**, James Jacobs, USFS

11:00 **Cankers**, Tom Zegler, NM State Forestry

11:30 **Lunch location TBD (Bring your own)**

12:30 **Field Trip**

Insect and Disease Identification & Management And Hazard Tree Training

October 25-28, 2016

Safford Ranger District,
Coronado National Forest

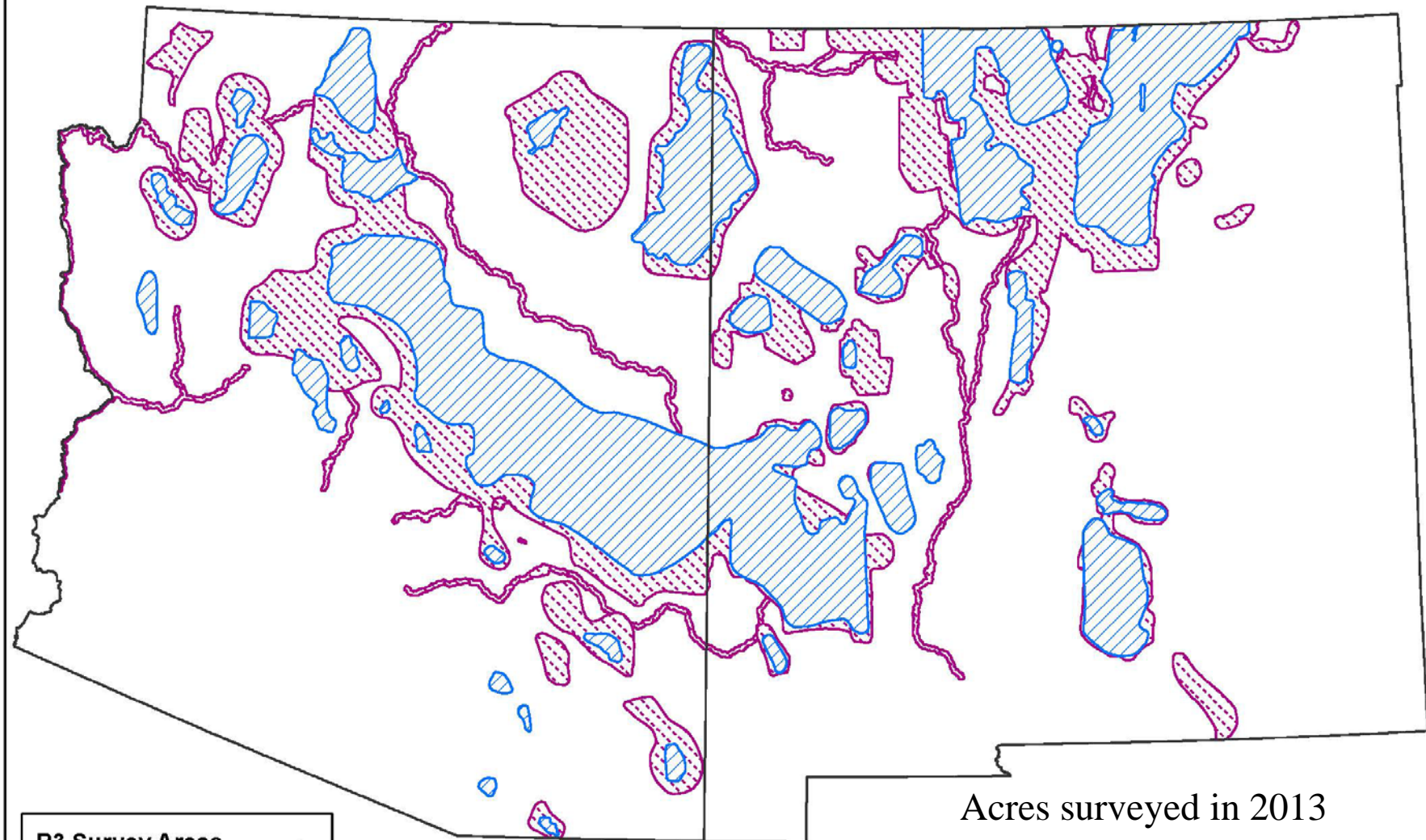
Forest Health Aerial Detection Surveys



Annually 20 million acres surveyed in AZ & NM

Annually 5-7 million acres of tribal lands surveyed

Detect major outbreaks bark beetles and defoliators



R3 Survey Areas

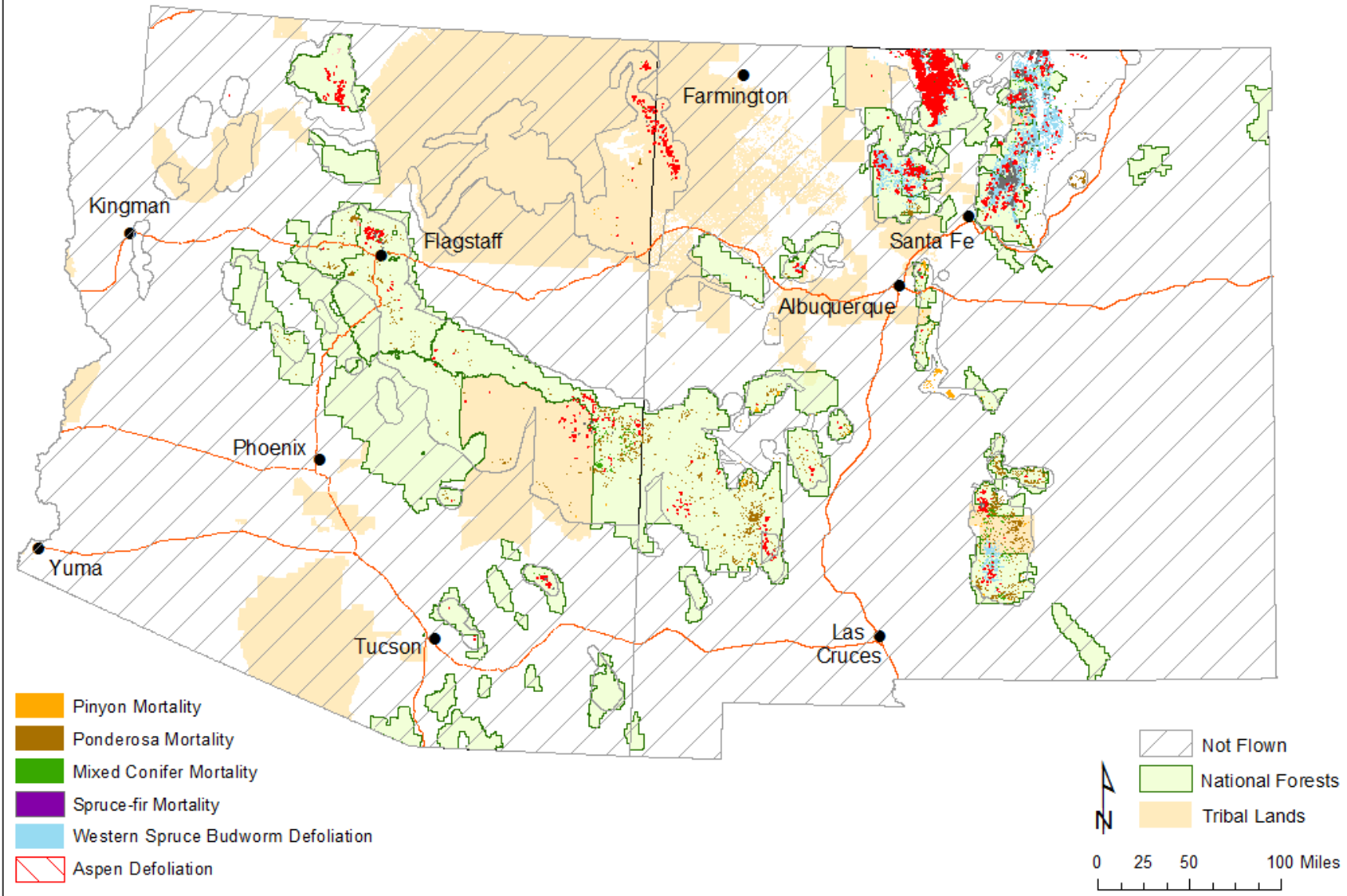
-  Annual Full ADS
-  Special IDS

0 20 40 60
Miles

USFS FHP
NM Zone Office
7 Jan 2013

Acres surveyed in 2013
10.6 mil (NM) 14.0 mil (AZ)
Tribal acres surveyed in 2013
1 mil (NM) 5.7 mil (AZ)

5 Yr Cumulative Insect Damage from Aerial Detection Surveys



Forest Health Protection- Southwestern Region

USDA United States Department of Agriculture
Forest Service

Southwestern Region

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Contact Information

Southwestern Region
333 Broadway SE [map]
Albuquerque, NM 87102

Forest & Grassland Health

The Forest Health staff of the Southwestern Region provides assistance and expertise to Federal, State, Tribal and private land managers in Arizona and New Mexico concerning forest health conditions and issues. We provide advice and support for projects to help prevent or suppress insect and disease outbreaks. Annually, we conduct survey flights to provide land managers with information on forest health conditions, with an emphasis on detecting insect activity. Information on current activity and our program is provided through the links below.

Forest Health

- Insect & Disease Surveys
- Current Highlights
- Bark Beetles
- Hazard Tree Management
- Weed Field Guides
- Publications
- Forest Health Staff
- Other Resources

Field Guide

- Field Guide to Insects & Diseases of AZ and NM

Key Contacts

- Allen White
R3 Pesticide / Invasive Species Specialist
(505) 842-3280

Forest Health Staff

- John Anhold
AZ Zone Leader
(928) 556-2073
- Debra Allen-Reid
NM Zone Leader
(505) 842-3286

Updates

- Our **2012 insect & disease conditions report** is available (PDF, 3.0 mb)
- A new series of weed field guides has been posted on the **invasive species** page
- View insect and disease information and survey results through our new national **ForestHealth** portal.

Field Guide for Managing Invasive Species

USDA
United States Department of Agriculture
Forest Service
Southwestern Region
Forest and Forest Health
July 2013
PR-103-10-9

Forest Insect and Disease Conditions in the Southwestern Region, 2012

Field Guide to Insects and Diseases of Arizona and New Mexico Forests

MR-R3-16-3

<http://www.fs.usda.gov/goto/r3/foresthealth>

How to get aerial survey data

Ids Explorer - Microsoft Internet Explorer provided by USDA Forest Service

http://foresthealth.fs.usda.gov/portal/Flex/IDS

File Edit View Favorites Tools Help

USDA United States Department of Agriculture Forest Service

Forest Health Protection INSECT & DISEASE DETECTION SURVEY DATA EXPLORER

Southwestern

Tool Box

Search

Explore

To start exploring pest damage, please select the year of interest. Explore all pests or add a pest of interest.

2012

Select Pest

Exploring All Pests

IDS

Surveyed Area (where provided)

Layers

NIDRM

Aerial Imagery

Hillshade

USGS Quads

IDS Legend

Surveyed Area

Mortality

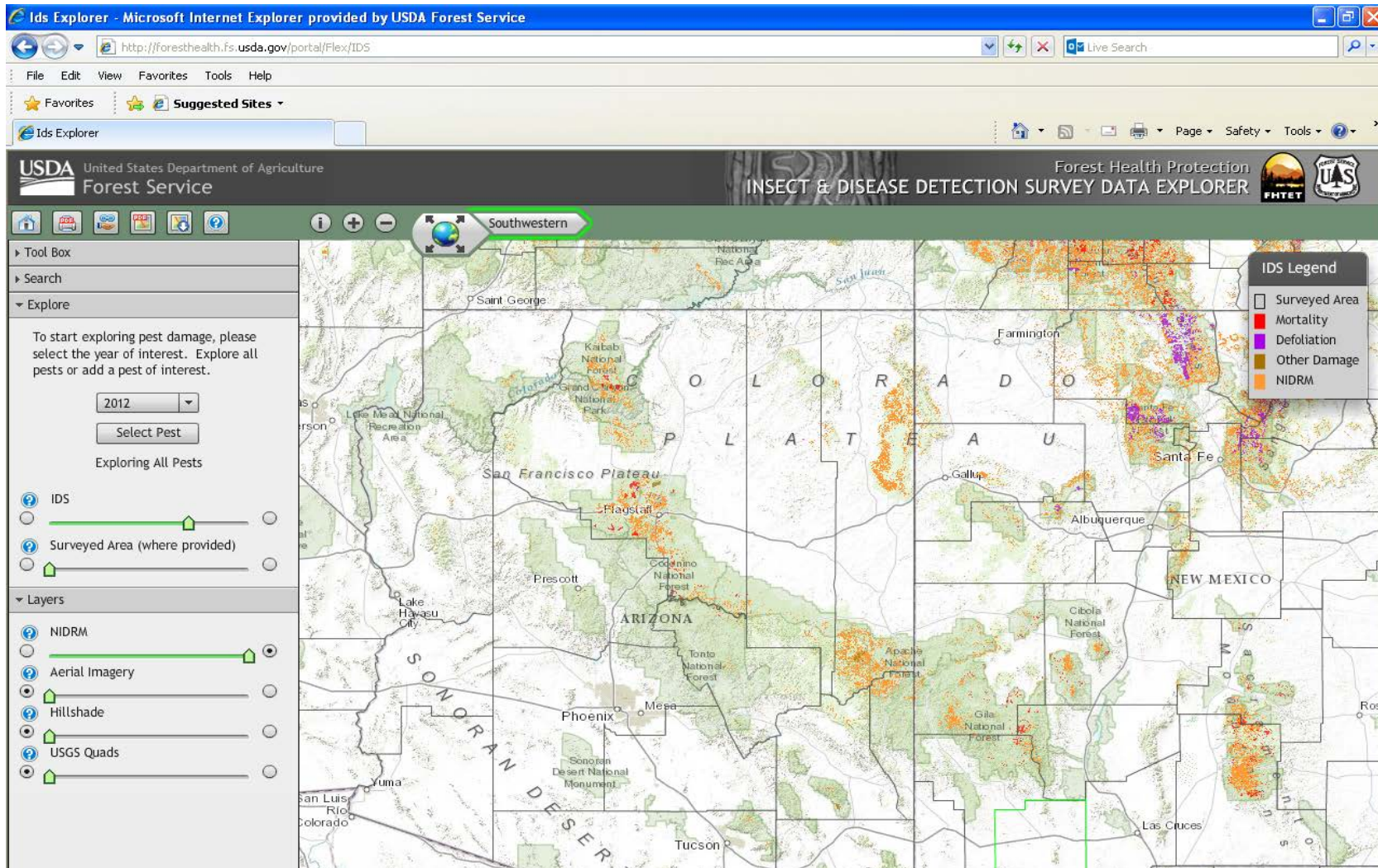
Defoliation

Other Damage

NIDRM

http://foresthealth.fs.usda.gov/portal/Flex/IDS

National Insect & Disease Risk Map



<http://foresthealth.fs.usda.gov/portal/Flex/IDS>

BIA Suppression Funding in the Southwestern Region

FY 2012

AZ	122,000
NM	375,000
Total	497,000

FY2013

AZ	115,300
NM	197,729
Total	313,029



Tribes receiving funds in FY 2013

- Jicarilla Apache (Mistletoe Reduction 96 acres)
- San Carlos (Mistletoe and thinning 389 acres)
- Southern Pueblos (Mistletoe and hand-thinning 44 acres)
- Mescalero Apache (Mistletoe and thinning PIPO/DF 210 acres)



United States
Department of
Agriculture

Forest
Service

Washington Office

201 14th Street, SW
Washington, DC 20250

File Code: 3400; 6510
Date: August 4, 2016

Mr. Neil Kornze
Director- Bureau of Land Management
U.S. Department of the Interior
Main Interior Building, Mailstop 5612
1849 C Street, NW
Washington, DC 20240-0002

Dear Mr. Kornze:

Each year the U.S. Forest Service provides technical assistance and funding for the suppression of forest insects and diseases on Federal lands. Forest Health Protection (FHP) field staffs work closely with the U.S. Department of Interior (DOI) staffs to identify facilities that have insect or disease outbreaks, and need suppression treatments. The deadline for funding requests for Fiscal Year (FY) 2017 forest insect and disease suppression projects is **October 28, 2016**.

Each bureau must enter project proposal information directly into the Forest Service, FHP database found at: <http://svinetfc8.fs.fed.us/fad/>. Please reference Forest Service publication, FS-3400, found at: http://www.fs.fed.us/foresthealth/docs/pest_project_proposal_fs_3400_2.doc for required information needed to submit a proposal. We also request all DOI accomplishments for FY 2016 be entered into the same database by **October 28, 2016**. It is important that funding and accomplishments are entered into the database for tracking the success of projects and addressing any future needs.

When considering project selection we look at the purpose and need for the project (funding provided for insect and disease suppression treatments only), a completed biological evaluation by our field staff and DOI priorities. To initiate this process, bureau staffs should contact FHP field offices; a directory can be found at: http://www.fs.fed.us/foresthealth/publications/FHP_Staff_Directory_final.pdf. As discussed with bureau representatives, we plan to meet with DOI and other Federal representatives to discuss our proposed funding allocations once all projects have been reviewed.

We have worked directly with the following bureau coordinators to keep them informed of the FY 2017 proposal process:

James Howard, National Park Service, james_c_howard@nps.gov
Cindy Hall, Fish and Wildlife Service, cindy_hall@fws.gov
Wade Salverson, Bureau of Land Management, wsalvers@blm.gov
David Koch, Bureau of Indian Affairs, david.koch@bia.gov

USDA - Forest Service					
FOREST PEST MANAGEMENT PROJECT PROPOSAL (Ref: FSM 3400, Report FS-3400-E)					
PART I - REQUESTING OFFICE USE ONLY					
1. Region/Area	2. State	3. Fiscal Year	4. Casual Agent	5. Group	6. Landownership (x appropriate box) <input type="checkbox"/> National Forest <input type="checkbox"/> Other Federal
7. Type of Project (x appropriate box) <input type="checkbox"/> Prevention <input type="checkbox"/> Suppression		8. Status of Project (x appropriate box) <input type="checkbox"/> New Project <input type="checkbox"/> Continuing Project		9. Host Protected	
10. Prevention/Suppression Method		11. Pesticide		12. Application Rate	
13. Program Activities (a)	First Year Targets and Costs			Funds Needed in Subsequent Years	
	Units of Work (b)	Unit Cost (c)	Total Planned Cost (d)	FY: Estimated Cost (e)	FY: Estimated Cost (f)
(1) Pretreatment Survey (Acres)					
(2) Treatment (Acres)					
(3) Volume Treated (MBF)					
(4) Volume Removed (MBF)					
(5) Volume Protected (MBF)					
(6) Post-Treatment Evaluation (Acres)					
(7) Environmental Monitoring (Acres)					
(8) Other (Identify)					
(9) Subtotal					
(10) Indirect and service charges (Field) Percent of Subtotal (%)					
(11) Total Field Costs					
14. Proposed By (Signature)			15. Title		16. Date
PART II - REGION OR AREA USE ONLY					
17. Region/Area Indirect and Service Charges Percent of Total Field Costs (%)					
18. Total Project Costs					
19. Approved By (Signature)		20. Title		21. Project Number	22. Date
PART III - WASHINGTON OFFICE USE ONLY					
23. Project Action (x appropriate box) <input type="checkbox"/> Approved <input type="checkbox"/> Disapproved		24. Total Funds Allocated			
25. Approved/Disapproved By (Signature)			26. Title		27. Date