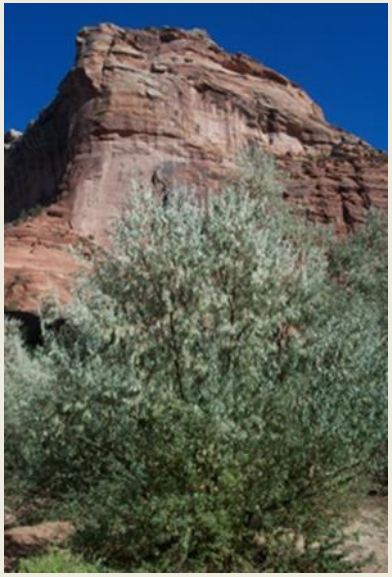
National Park Service
Biological Resource Division

Russian Olive Tree Control

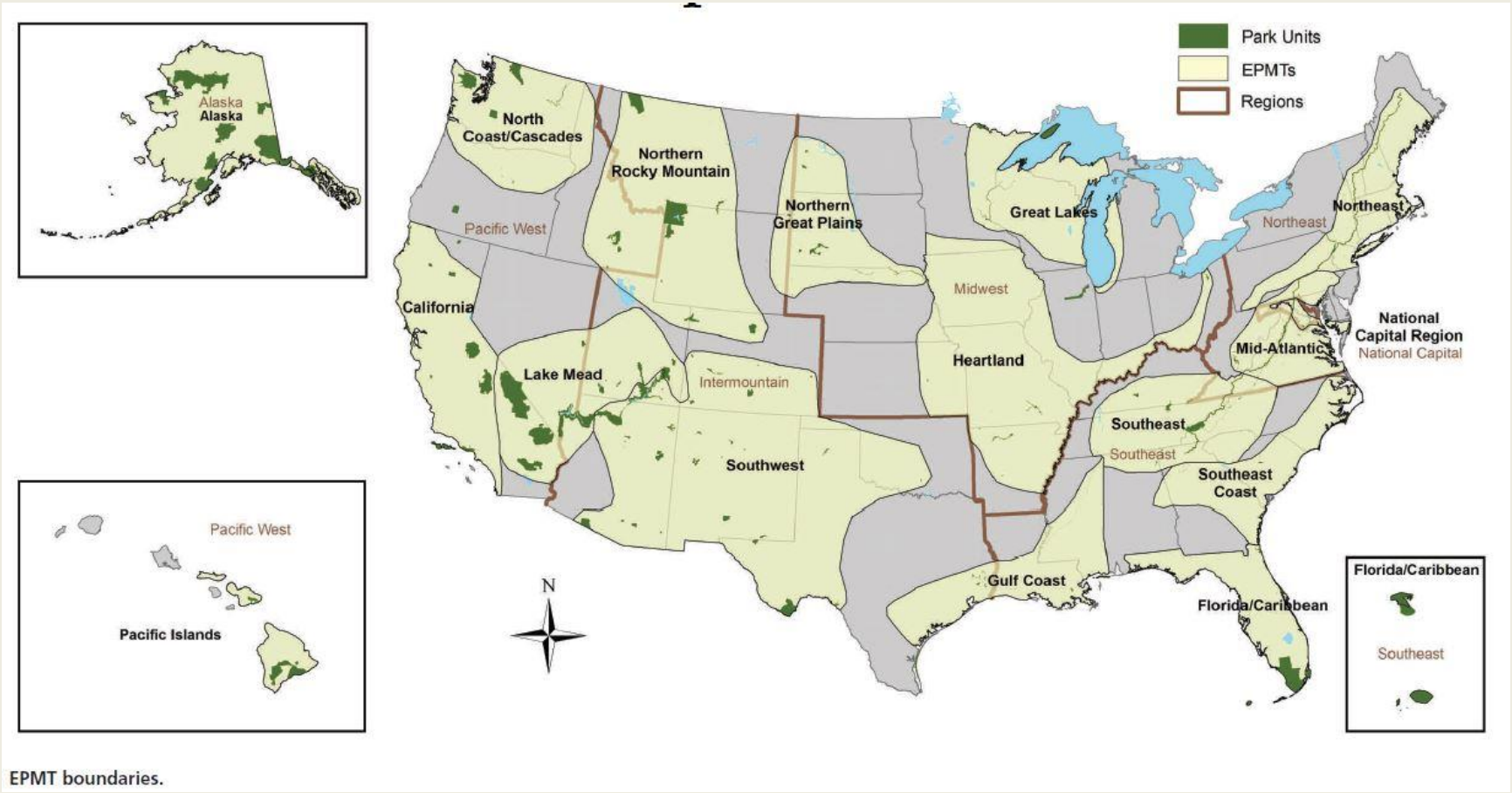


Presented by: Curt Deuser
Supervisory Restoration Ecologist
National Park Service

Rivers Edge West Riparian Conference
February 6, 2019
Phoenix, AZ

National Park Service
Biological Resource Division

NPS Exotic Plant Management Teams



EPMT boundaries.

National Park Service
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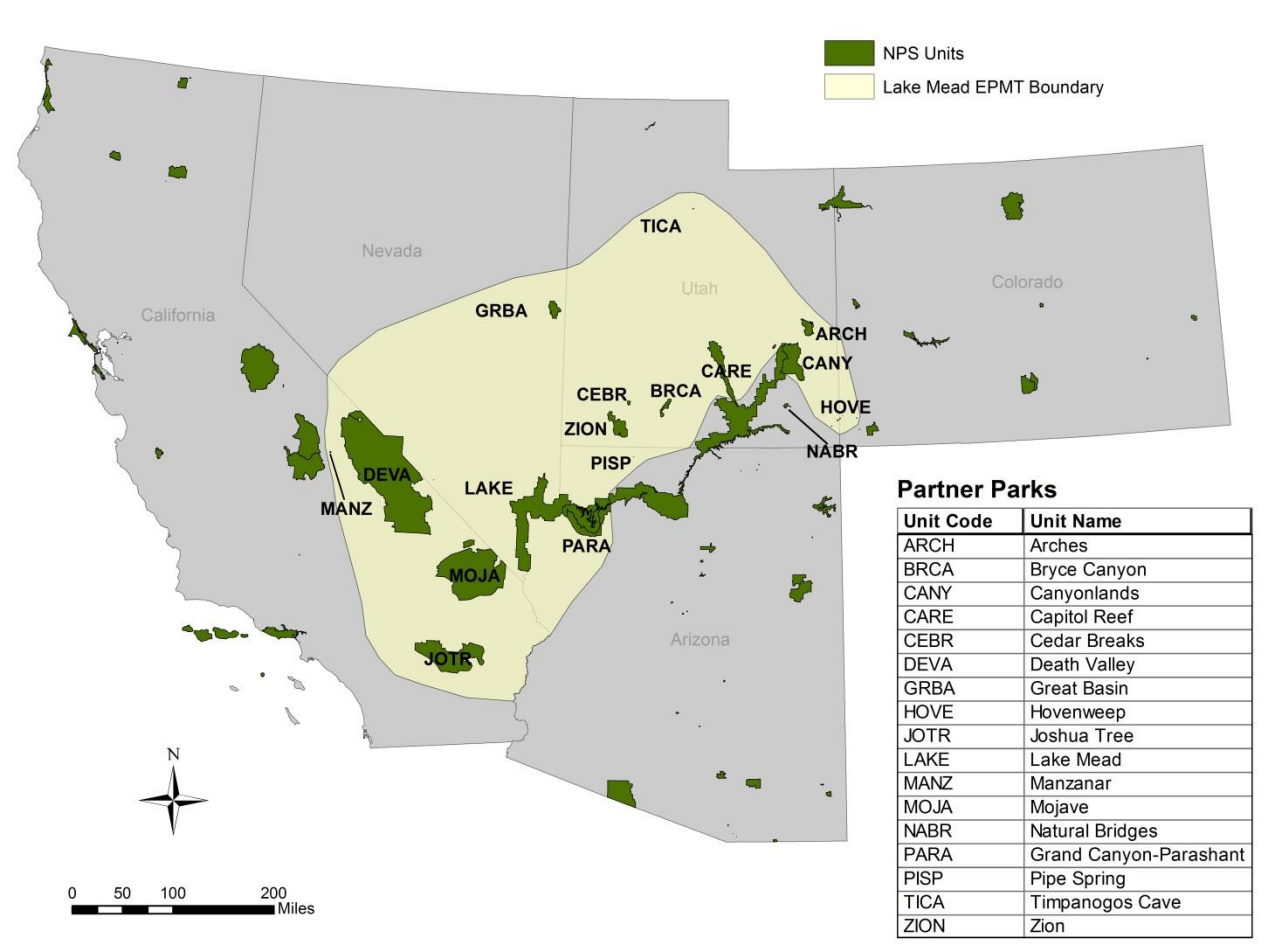
Lake Mead EPMT



Partner Parks

Unit Code	Unit Name
ARCH	Arches
BRCA	Bryce Canyon
CANY	Canyonlands
CARE	Capitol Reef
CEBR	Cedar Breaks
DEVA	Death Valley
GRBA	Great Basin
HOVE	Hovenweep
JOTR	Joshua Tree
LAKE	Lake Mead
MANZ	Manzanar
MOJA	Mojave
NABR	Natural Bridges
PARA	Grand Canyon-Parashant
PISP	Pipe Spring
TICA	Timpanogos Cave
ZION	Zion

National Park Service

Lake Mead Exotic Plant Management Team

- Regional travelling crew
- Support Multiple NPS Units
- Interagency partnerships
- USFWS, BLM, BOR
- US Forest Service
- Southern NV Water Authority
- Clark County, NV

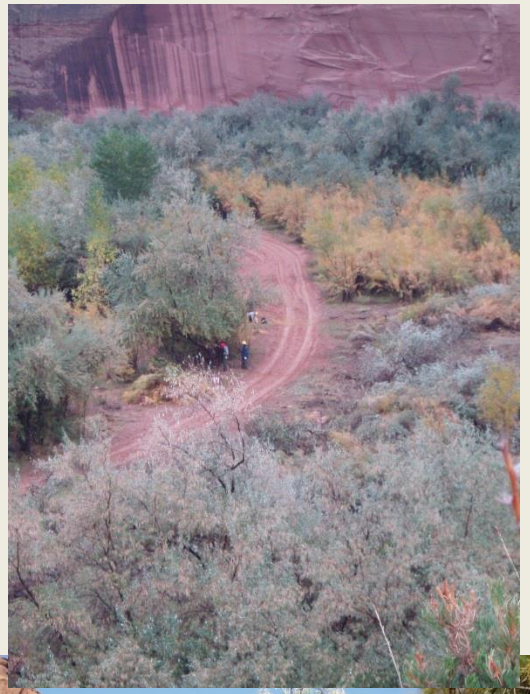
Russian Olive: *Elaeagnus angustifolia*

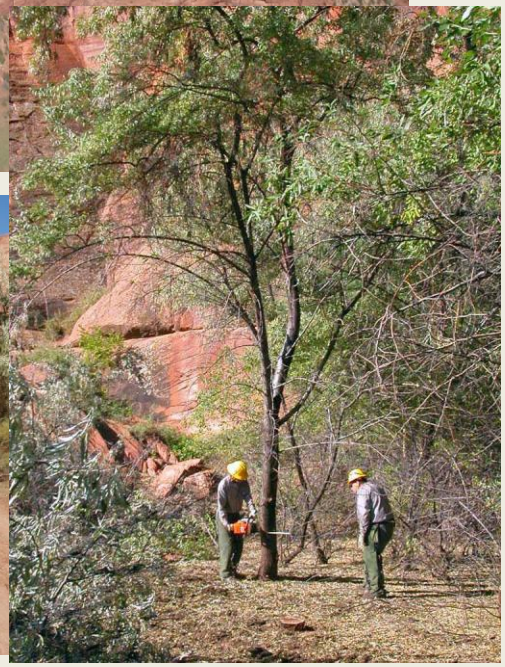
- Tributaries of the Colorado Plateau
- Expanding on the main stem of the Colorado and Rio Grande
- Seeds : round small marbles
- Slower spread
- Green/Escalante
- Snake River, ID

Different Results compared to Tamarisk

- Tamarisk and Russian Olive
- Same chemical formulations and methods for tamarisk were not working as well on Russian Olive
- Canyon de Chelly, AZ and Hubbel Trading Post NHS, AZ and Dinosaur NM, Colorado

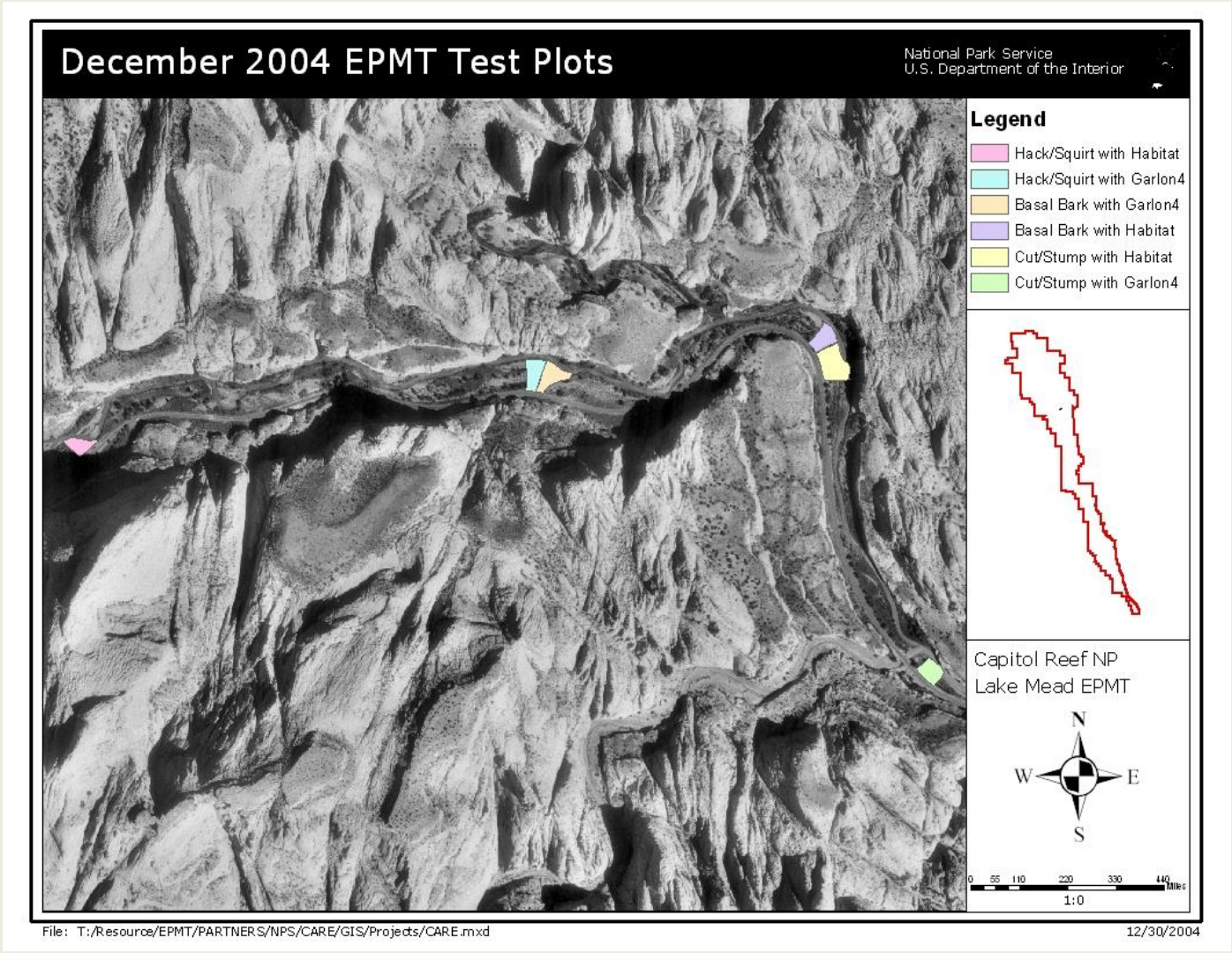
Canyon de Chelly, National Monument Arizona





Hubbel Trading Post NHS; Ganado Wash, AZ

Fremont River, UT test plots



Pahranagat Valley Cooperative Weed Management Area

- Larger Scope and Education
- Formation of PVCWMA March 2010
- Private, State, and Federal Partnership
- Need for BMP's due to mixed aged stands of Russian olive in the valley
- Inefficient control methods

PVCWMA

- Demo Treatment Plots Established Fall 2010
  1. Frill Cut (HS) with Garlon (Triclopyr)
  2. Frill Cut (HS) with Glyphosate (Aquamaster)
  3. Basal bark spray with Garlon
  4. Cut Stump with Garlon
  5. Cut Stump with Glyphosate
  6. Cut Stump with no chemical (control)

(10-25 trees per plot, mixed age stands of trees, two large properties
Mixing rates 100% Aquamaster and 33% Garlon 4 (triclopyr) and 67% JLB Oil)
**Some concern with lack of large scale treatment

Frill Cut

Basal Spray

- Base of Stems
- Younger Plants (< 6 inches)
- Garlon with JLB Oil Surfactant
- Resprouts

Frill Cut and Basal Spray Adjustments

- Younger trees at one property
- Older trees at the second property
- Split out the data between two properties

Cut Stump (3 treatments: Garlon, Glyphosate, and Control)

Results

TREATMENT PLOTS

Method	Herbicide	Results
Frill	Garlon	Prop. 1 10% kill – large trees Prop. 2 83% kill - small trees
Frill	Glyphosate	Prop. 1 100% kill – large trees (best) Prop. 2 75% kill – small trees
Basal	Garlon	Prop. 1 50% kill – large trees Prop. 2 72% kill - small trees
Cut Stump	Garlon	Prop. 1 60% kill – larger trees Prop. 2 86% kill – small trees
Cut Stump	Glyphosate	Prop. 1 75% kill – larger trees Prop. 2 95% kill – smaller trees
Cut Stump	Control	Prop. 1 No data Prop. 2 25% kill – smaller trees (more regrowth anticipated)

Recommendations

FRILL CUT WITH GLYPHOSATE!

BASAL SPRAY WITH GARLON (YOUNGER TREES)

FACT SHEET HANDOUT

CUT STUMP (GLYPHOSATE AND GARLON)

Before and After

Dead Tree

Weed and Feed

5 years post treatment, some minor basal/root sprouting observed

Acknowledgements

- Many thanks to all the private landowners without which our projects could not have succeeded. Kraig Hafen, Cody, Betsy, Jane and Brett Whipple, Marden Spencer, and all other private landowners in PV that are Members of the PVCWMA.
- Volunteers
- Nevada Division of Forestry, FWS Partners Program (Bridget Neilson, Christiana Manville) and State NDOW Employees

*Chris Tomlinson, Nevada Dept of Wildlife

*Robin Wilson, NV Audubon Society

Russian Olive Control Methods

- Cut Stump
- Frill Cut/Hack and Squirt (not on tamarisk)
- Low Volume Basal Spray
- Foliar
- Heavy Equipment

- Target mortality 75-100%, results vary

Cut Stump Method

Cut Stump

Russian Olive Cut Stump Herbicide Options

- 75%-100% Glyphosate (Round-Up/Rodeo, others)
- 25%-33% Ester Triclopyr (Garlon 4, others) mixed with basal oil (JLB Improved Oil Plus, others) beware of volatility
- 8-12 ounces of Imazapyr/gallon of water (Habitat, Polaris, others)

Stump Spraying

Slash Mitigation

- Lop and scatter
- Pile (degrade or burn)
- Haul/Disposal
- Fire wood
- Chip

Pile on site

Haul off site/Firewood

Trailer

Chipper/Mulch

Russian Olive Frill Cut/Hack and Squirt Herbicide Options

- 75%-100% Glyphosate (Round-Up/Rodeo, others)
- 25%-33% Ester Triclopyr (Garlon 4, others) mixed with basal oil (JLB Improved Oil Plus, others)
- 8-12 ounces of Imazapyr/gallon of water (Habitat, Polaris, others)
- 2,4-D (undiluted)

Frill Cut/Hack and Squirt Method

More Hack and Squirt Method

Large and Small Trees

Girdle

Low Volume Basal Spray

- Re-sprouts
- Smaller diameter trees (<6inches, smooth bark)
- 25-33% Ester Triclopyr add remaining amount of basal oil
- Spray base of stems 6-18 inches in height
- No cutting or hacking
- Penetrates through bark into cambium
- Beware of volatility (avoid summer heat)

Low Volume Basal Spray

Foliar Treatment

- Glyphosate
- Imazapyr
- Triclopyr
- Others
- Low concentration formulas/refer to label
- Top of tree and at least two sides (>70% tree canopy coverage)
- Need more water than other methods
- Drift
- Efficient with good access (UTV/Truck tank sprayer)
- Backpack to Aerial (Helicopter)
- High density seedlings
- Dense cover of small trees

Mechanical/Heavy Equipment

- Tree extraction, uproot plants with excavator/clam shell bucket
- Hydro-ax, grinder
- Bulldozer
- Access limitations
- Ground disturbance

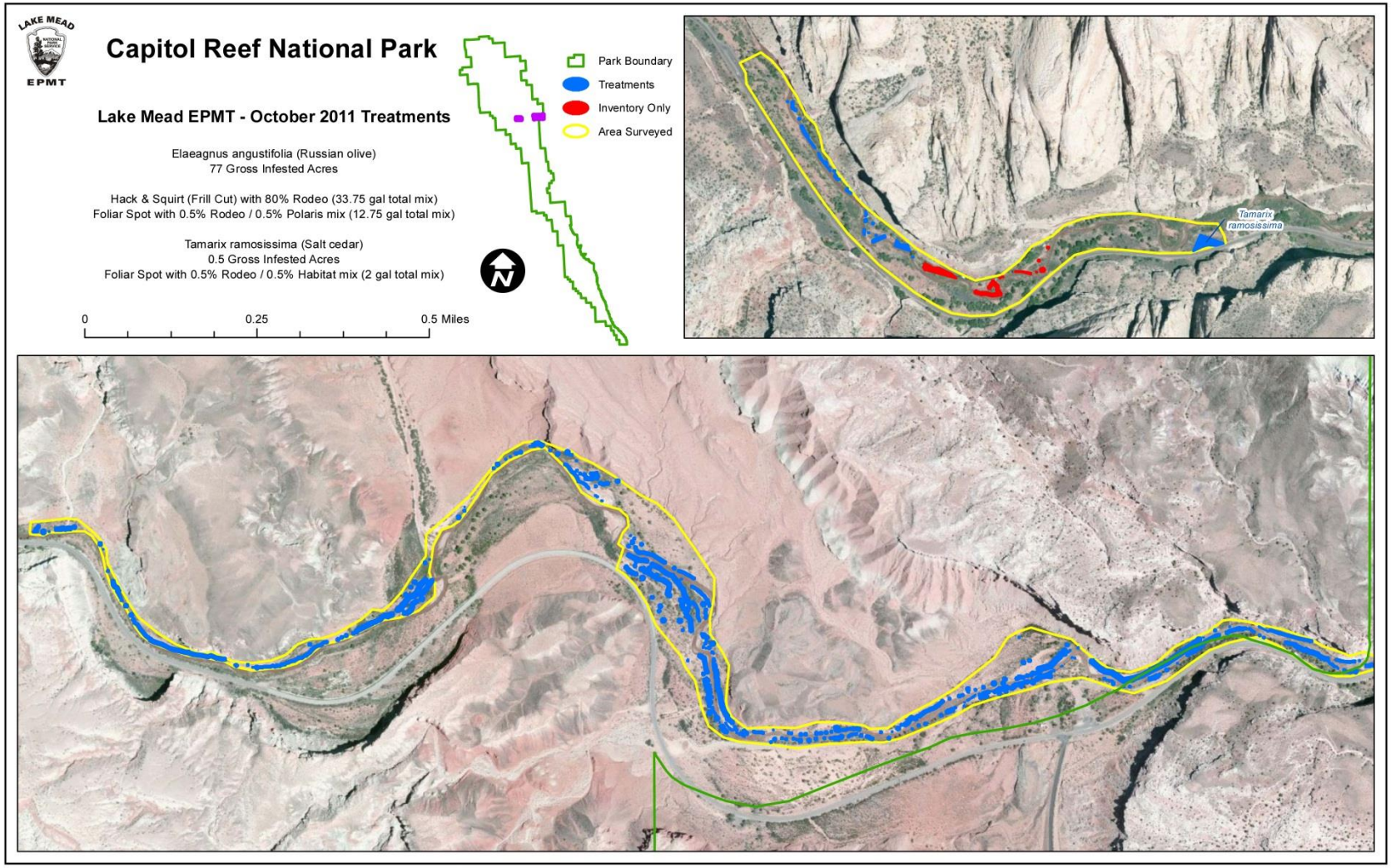
Equipment Types

Logisitcs/Access

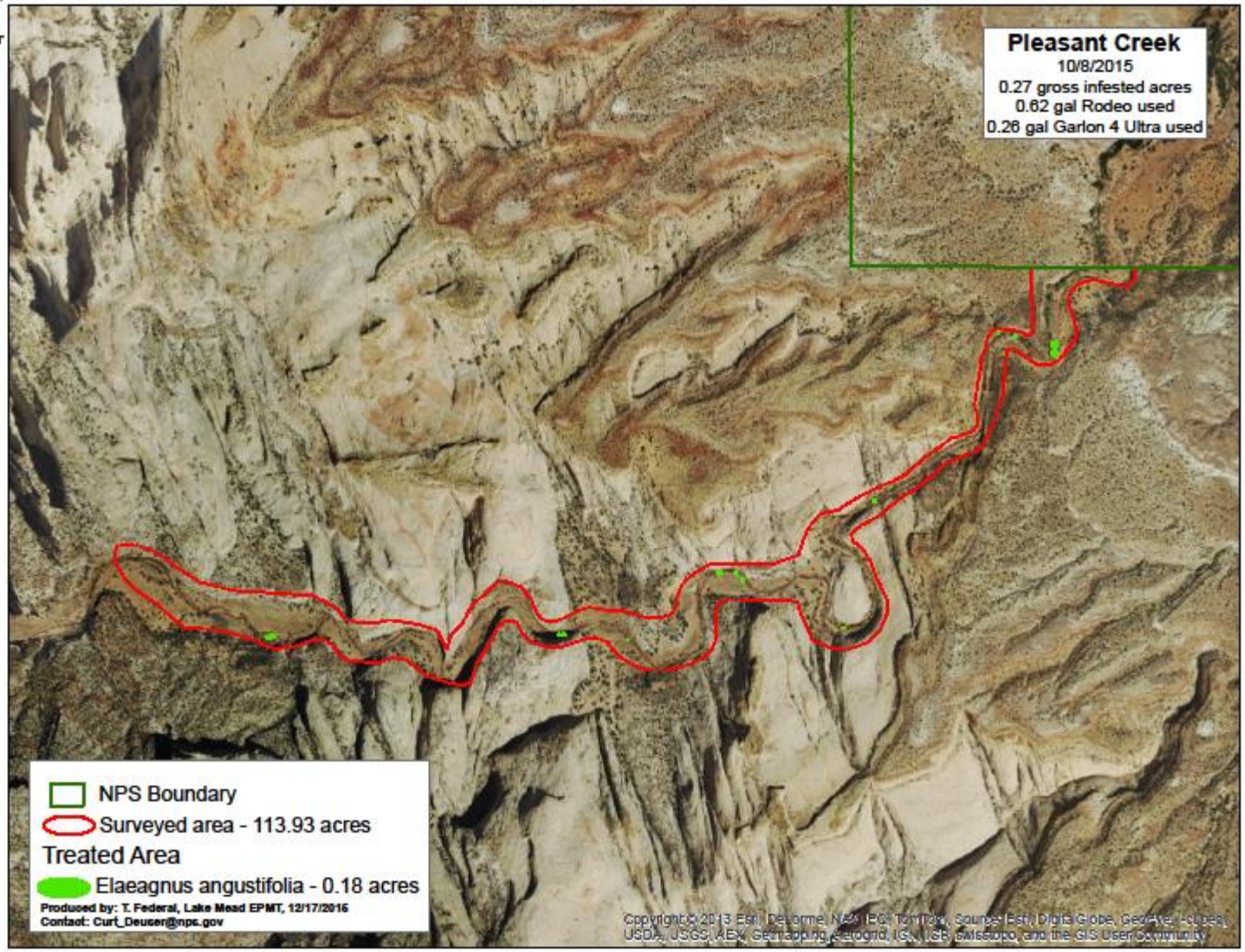
Data Management

- NAISMA Weed Mapping Standards
- Infested acres (cover)
- Gross Infested Area
- Survey
- Treatments

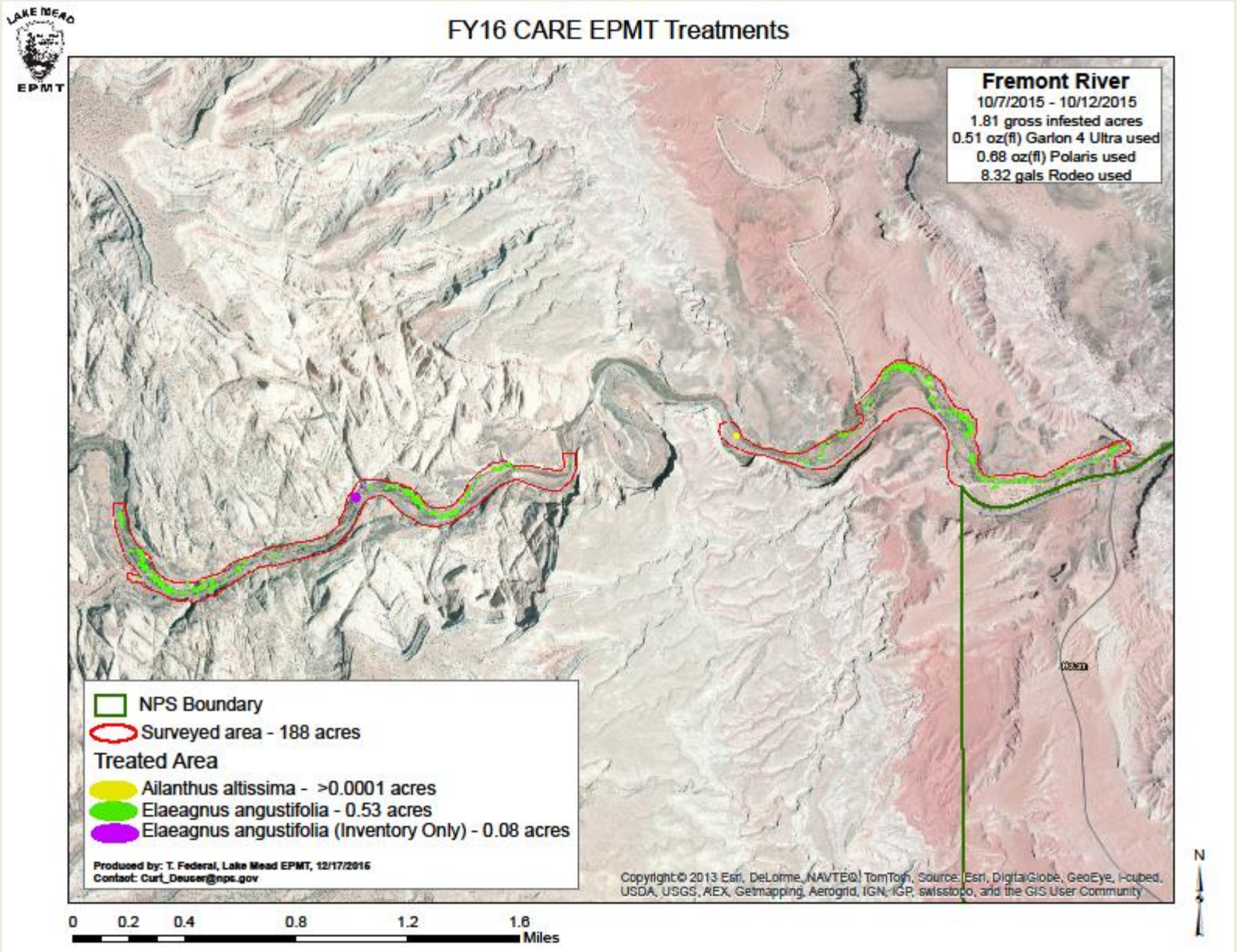
Weed Mapping: Fremont River, UT



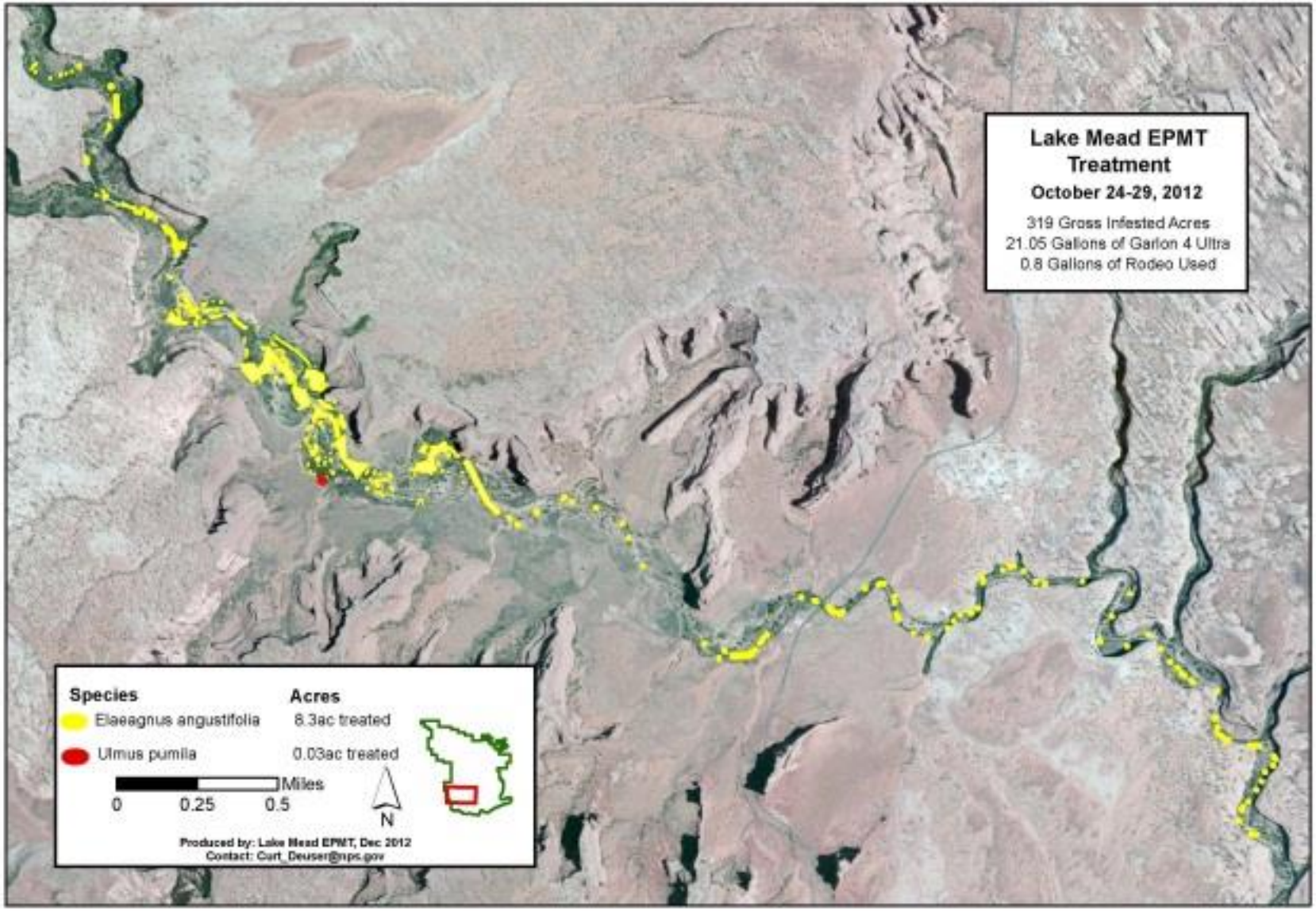
FY16 CARE EPMT Treatments



FY16 CARE EPMT Treatments



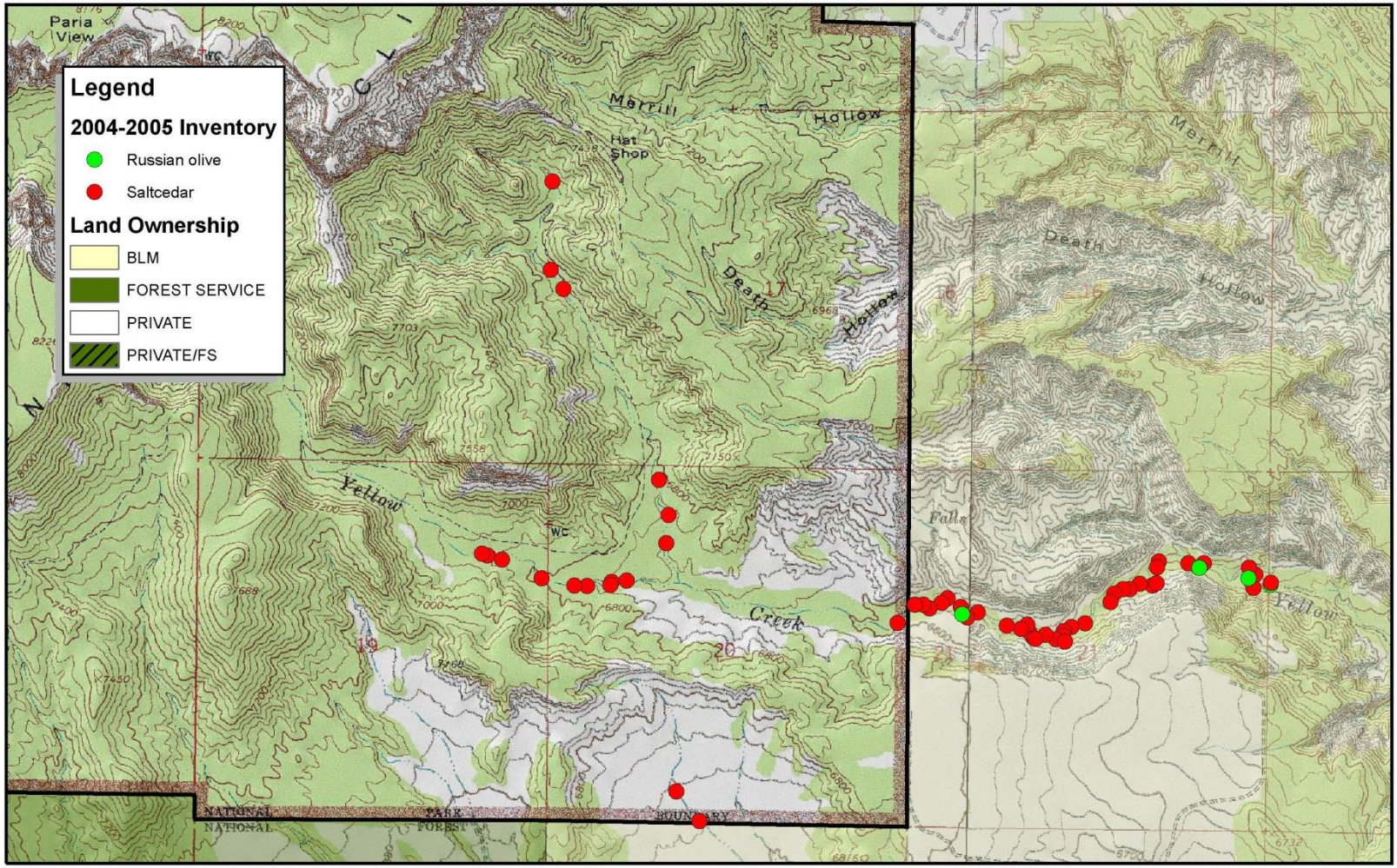
Arches National Park
Courthouse Wash



Bryce Canyon National Park
Utah

National Park Service
U.S. Department of the Interior

Yellow Creek ELAN and TARA



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July 2007

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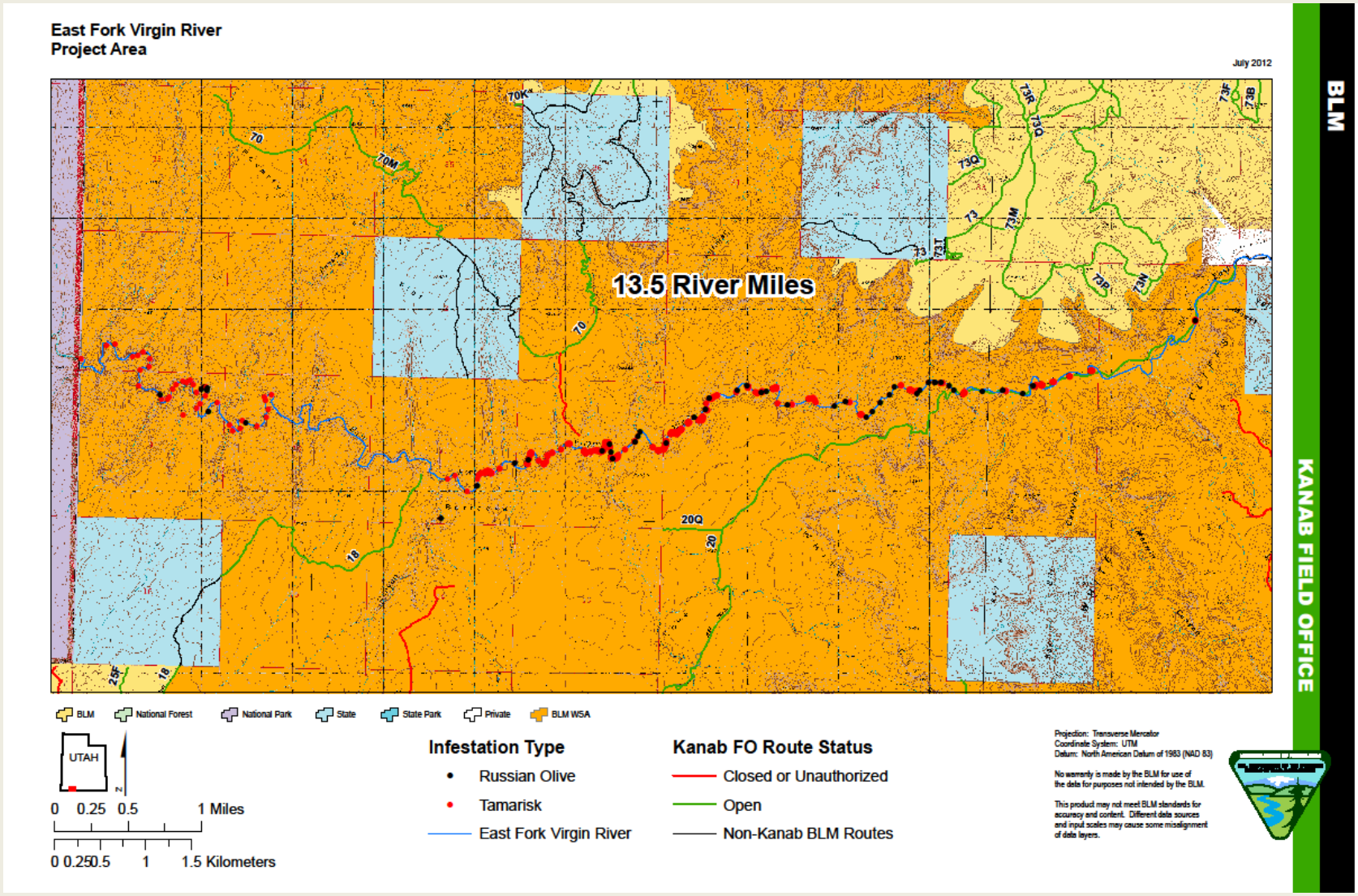
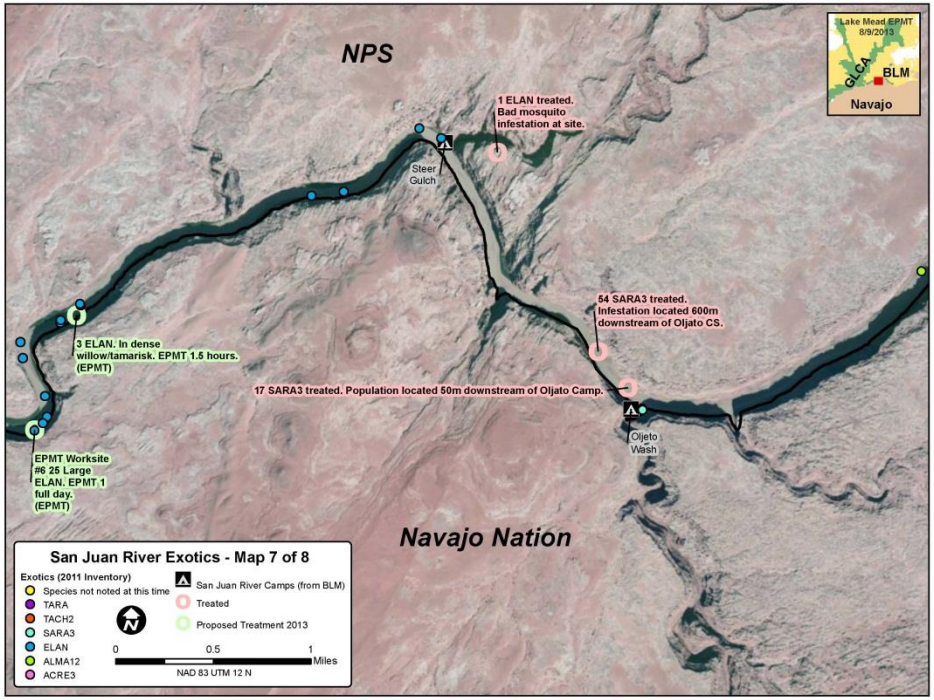
East Fork of the Virgin River, UT



San Juan River Weed Control

- Mexican Hat, UT down
- Ravenna Grass
- Russian Olive
- Russian Knapweed
- Camelthorn
- Partnering with Navajo Nation and BLM



Monitoring and Retreatment

- Plan on it/Build it in
- Re-sprouts and seedlings
- Take good data on methods and herbicide used
- Keep records
- Share data

Acknowledgements/References

- Tarl Norman, Supervisory Exotic Plant Specialist, NPS Lake Mead EPMT
- Tim Federal, Previous Data Manager, NPS Lake Mead EPMT
- Pahranagat Valley CWMA
- Chris Tomlinson/NDOW
- Robin Wilson/NV Audubon Society
- Numerous Lake Mead EPMT crew members

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Thank You

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