# Partnerships Lifeline:

Early detection and eradication of Japanese knotweed across boundaries

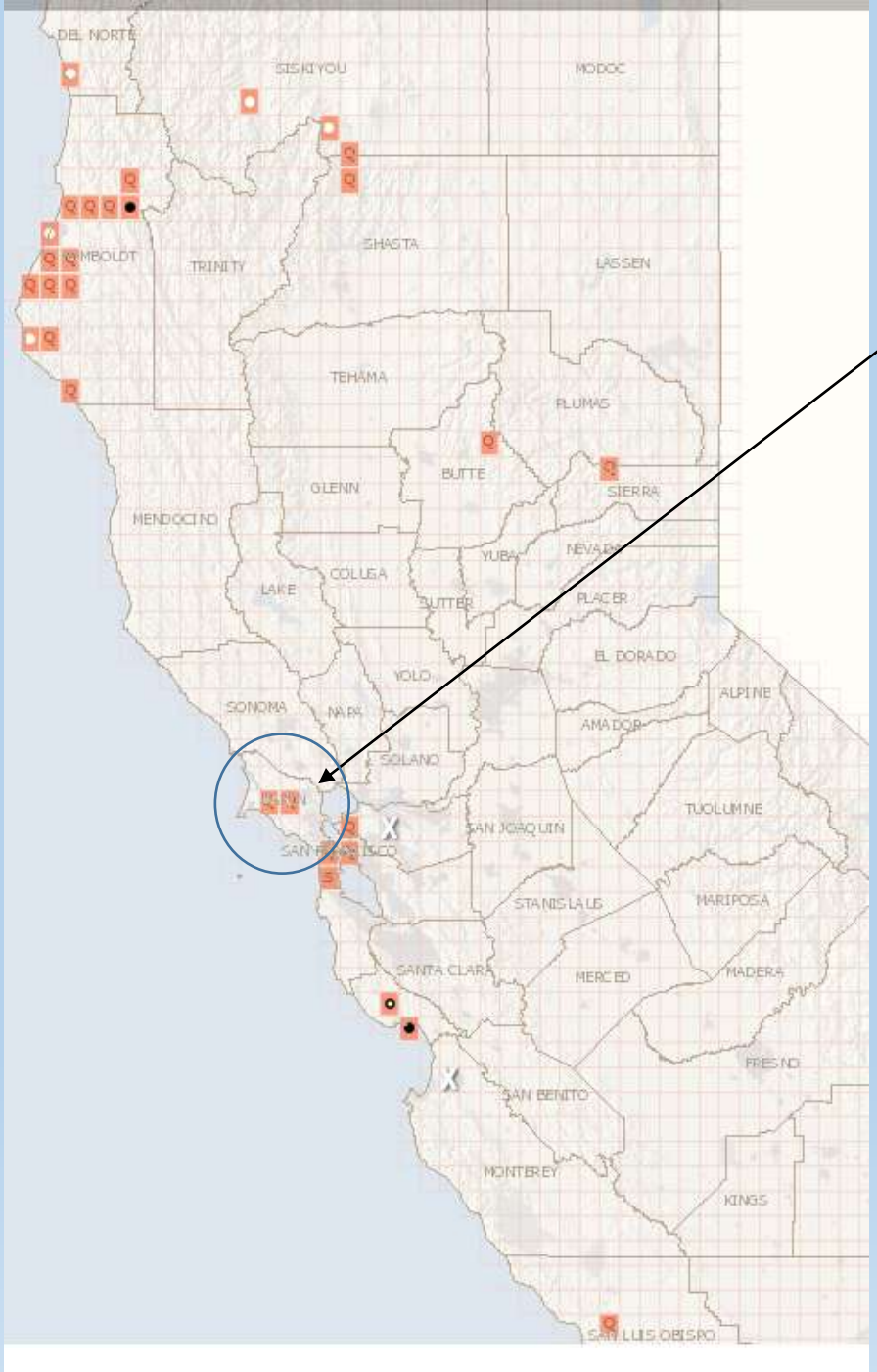
Bobbi Simpson,
National Park Service

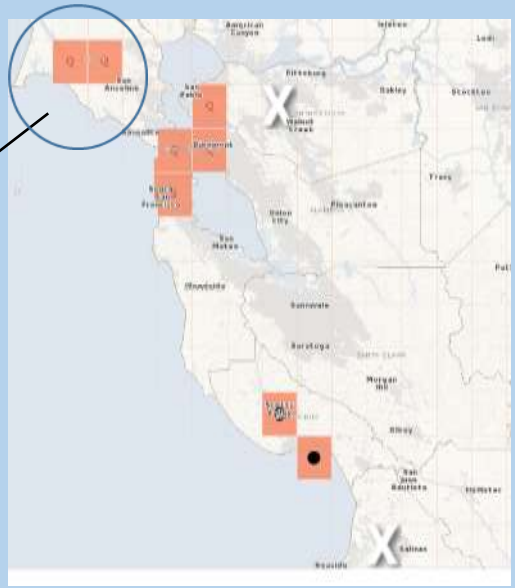
Calipc Symposium - 2018

# Traits and impacts of this ecosystem engineer

- Aggressive colonizer on wide variety substrate (1 $m^2$ stand can host up to 238 stems)
- Pulse of growth early in season
- Spreads by rhizomes (up to 20' horizontally & over 6' deep)
- Fragments the size of your fingernail can form new colonies & one fragment can grow 8' of rhizome in a season
- 

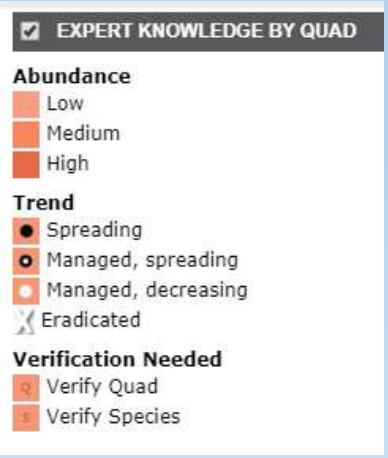
- Gradually eliminates trees by outcompeting seedlings
  - Loss of large woody debris in streams
  - Loss of nitrogen input from alders and other trees
- Increases erosion & turbidity
- Over time creek temperature increases due to siltation and lack of shade
- Reduces ecosystem stabilizing characteristics and in this case essential salmon habitat requirements



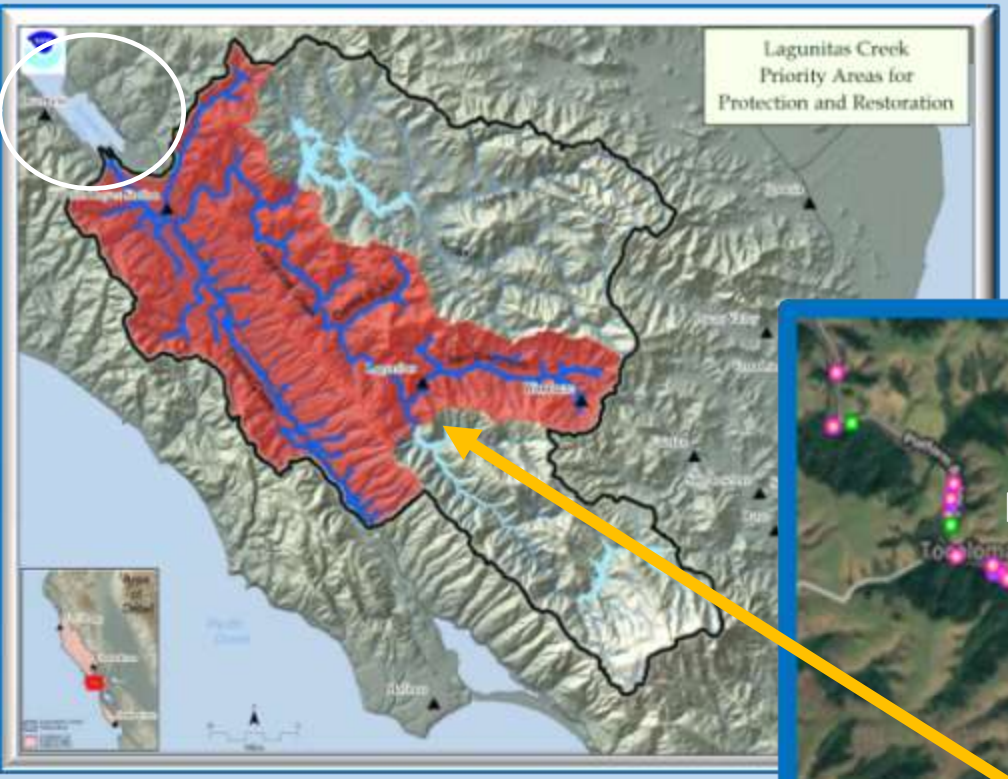



CalWeedMapper
Statewide
distribution

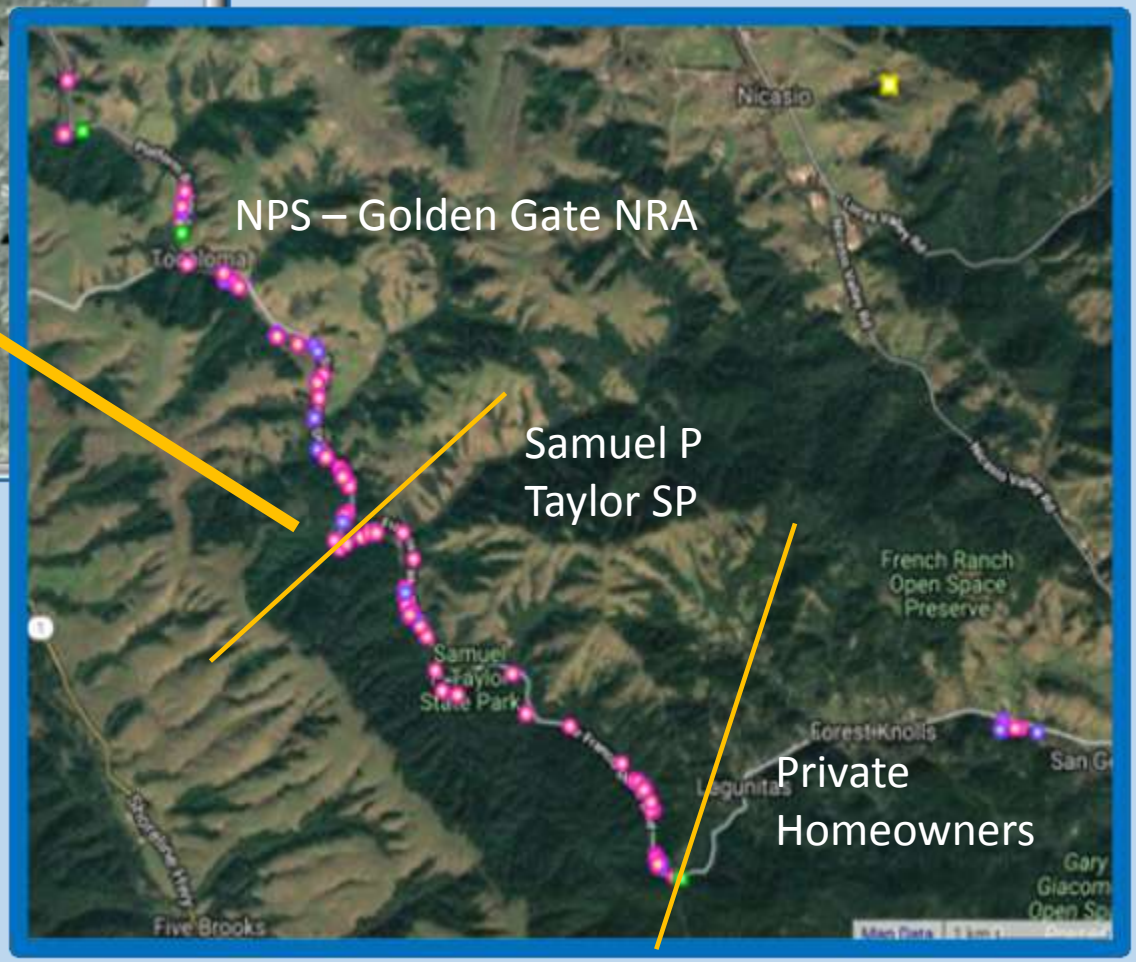
31 counties

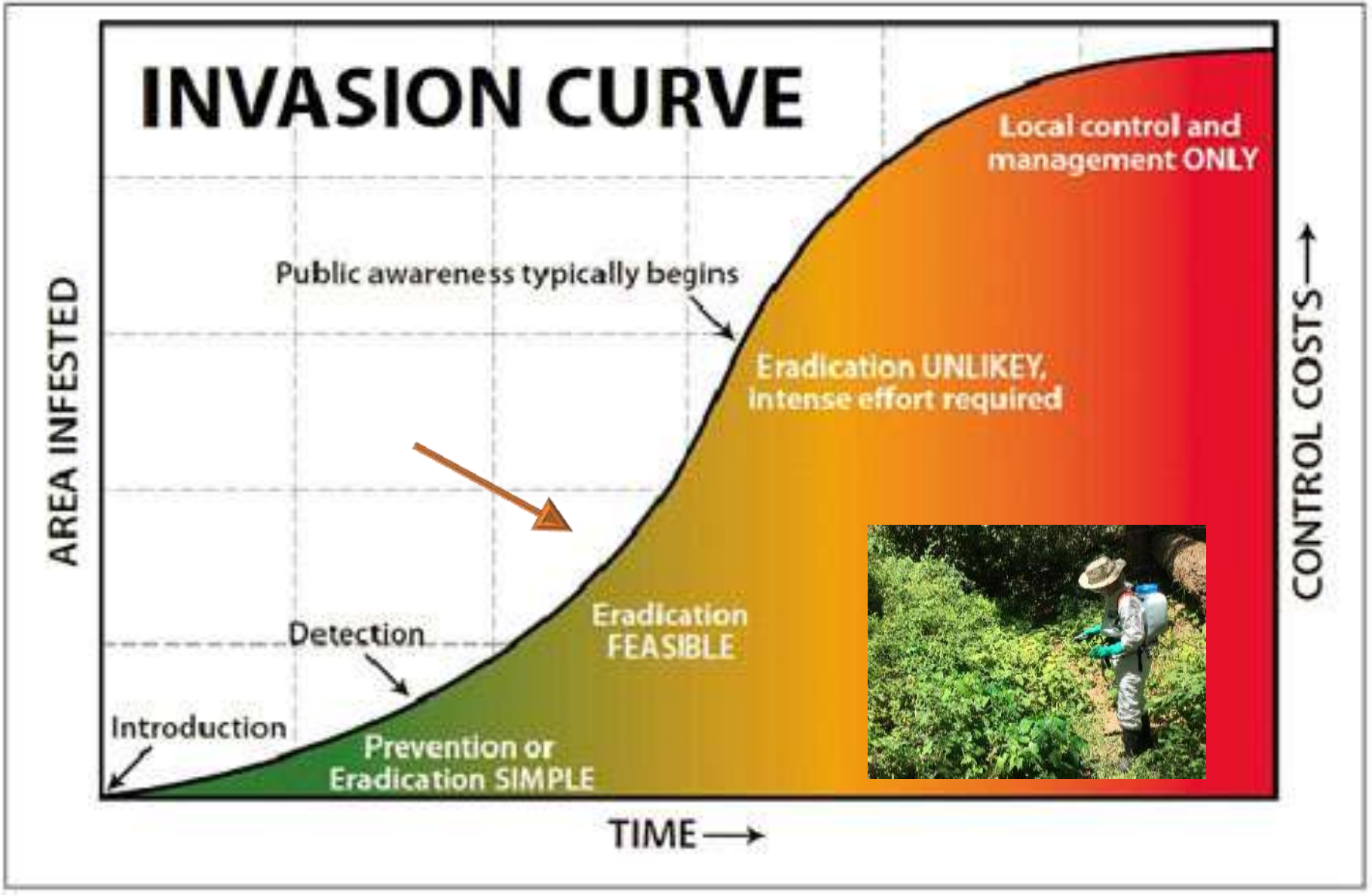


# Coho Salmon Critical Habitat - Lagunitas Creek (NOAA Fisheries)




***2018 Fallopia japonica*** **observations** Calflora Database (139 records)




INVASION CURVE
Local control and management ONLY
Public awareness typically begins
Eradication UNLIKEY, intense effort required
Eradication FEASIBLE
Detection
Introduction
Prevention or Eradication SIMPLE
AREA INFESTED
CONTROL COSTS
TIME

# TIMELINE 2011-2018

**2011**

**Initial discovery**

**2012**

**Salmon winter habitat restoration planning underway**

**2014-2016**

**Partial surveys & manual treatments at state and national parks, & RCD info flyers**

# TIMELINE 2011-2018 continued

Initial discovery 2011

2013 Salmon restoration projects planning begun

**2016**

**Initial FAJA meeting w/ Marin managers & began strategy development**

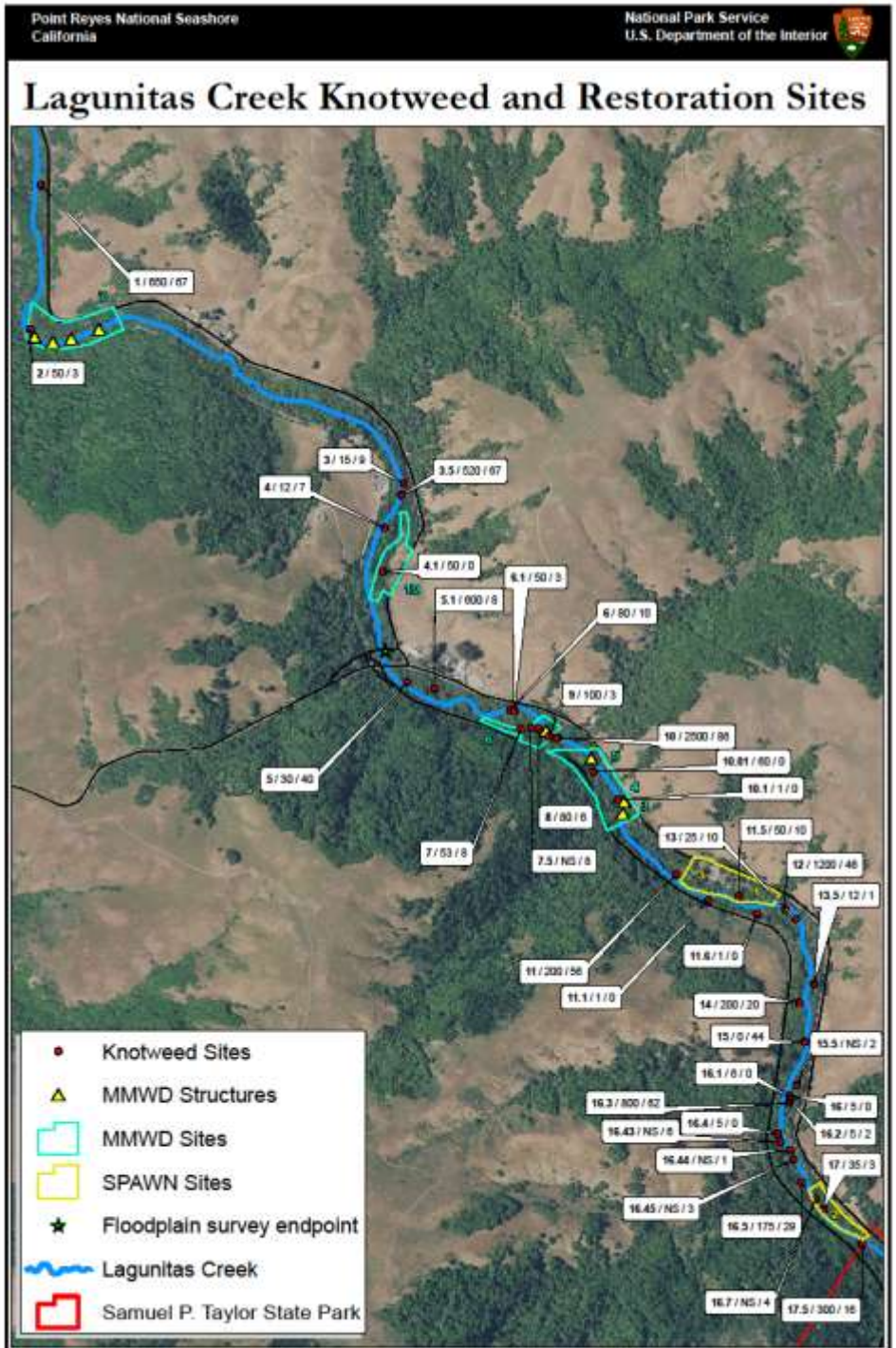
**2016-2017**

**We researched techniques and compliance for herbicide use consultations with NOAA and USFWS**

2014-2016 Partial surveys & manual treatmnts. state and national parks

**2017**

**MRCD & UC Ext outreach, NPS 1st full survey & herbicide treatments; and salmon habitat project construction**




How to reduce spread from restoration project?

Incinerate or bury site?

# NPS 2017-2018 Season Stats

| | 2017 | 2018 |
|---|---|---|
| Miles of creek surveyed | 8.6 | 8.6 |
| # of sites | 34 | 39 |
| Total stem count | 8111 | 635 |
| Net acres treated | 0.14 | 0.004 |
| Imazapyr applied (fl. oz.) | 18.45 | 1.25 |

2017: 5% Aquaneat, 1% Polaris, & 1% Competitor

2018: Only 1% Polaris and 1% Competitor

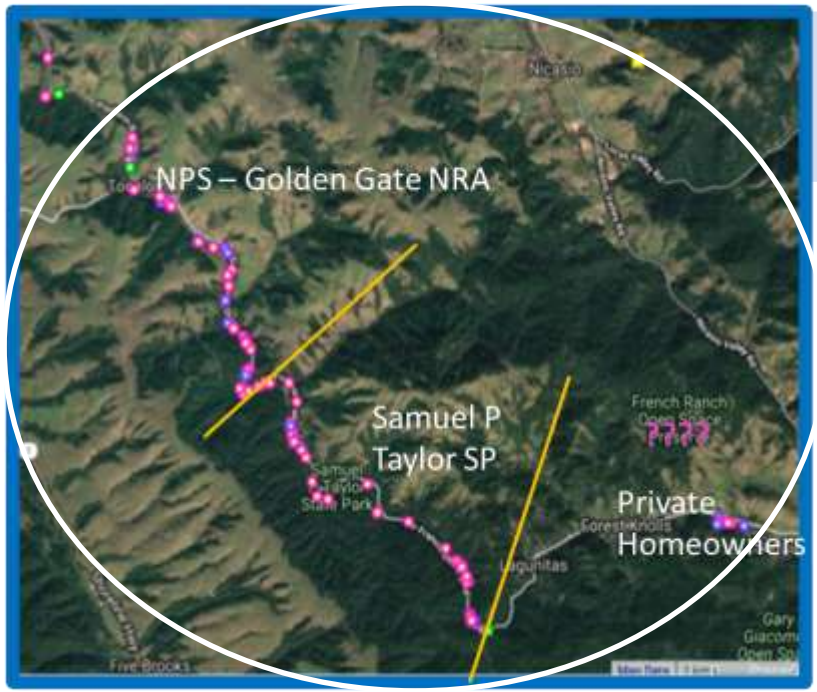
# Timeline 2011-2018 continued

**2018**

**Marin Knotweed Action Team Forms**

**2018**

**Continued surveys and treatments NPS and State Park**




**2018**

**County role expands**

**2018**

**26 surveys & 11 treatments <u>on private parcels</u>**


MKAT
Marin Knotweed Action Team


MARIN COUNTY
PARKS
PRESERVATION · RECREATION


GOLDEN GATE
NATIONAL
PARKS
CONSERVANCY


NATIONAL
PARK
SERVICE


COUNTY OF
MARIN

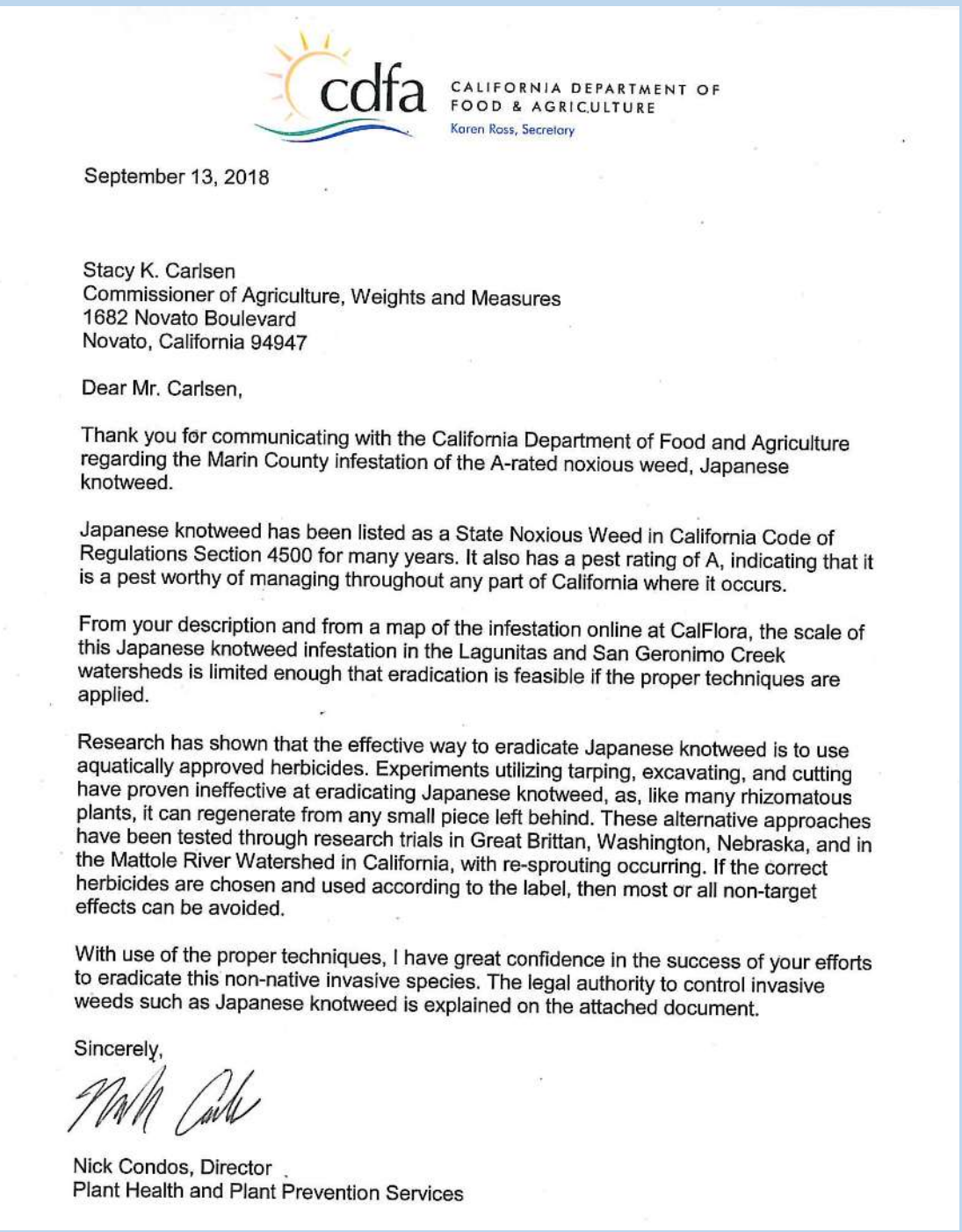

ONE
TAM
onetam.org


UC
CE


MARIN MUNICIP
WATER DISTRICT


MARIN RESOURCE
CONSERVATION DISTRICT


CALIFORNIA
SINCE 1864
STATE PARKS



cdfa CALIFORNIA DEPARTMENT OF FOOD & AGRICULTURE
Karen Ross, Secretary

September 13, 2018

Stacy K. Carlsen
Commissioner of Agriculture, Weights and Measures
1682 Novato Boulevard
Novato, California 94947

Dear Mr. Carlsen,

Thank you for communicating with the California Department of Food and Agriculture regarding the Marin County infestation of the A-rated noxious weed, Japanese knotweed.

Japanese knotweed has been listed as a State Noxious Weed in California Code of Regulations Section 4500 for many years. It also has a pest rating of A, indicating that it is a pest worthy of managing throughout any part of California where it occurs.

From your description and from a map of the infestation online at CalFlora, the scale of this Japanese knotweed infestation in the Lagunitas and San Geronimo Creek watersheds is limited enough that eradication is feasible if the proper techniques are applied.

Research has shown that the effective way to eradicate Japanese knotweed is to use aquatically approved herbicides. Experiments utilizing tarping, excavating, and cutting have proven ineffective at eradicating Japanese knotweed, as, like many rhizomatous plants, it can regenerate from any small piece left behind. These alternative approaches have been tested through research trials in Great Brittan, Washington, Nebraska, and in the Mattole River Watershed in California, with re-sprouting occurring. If the correct herbicides are chosen and used according to the label, then most or all non-target effects can be avoided.

With use of the proper techniques, I have great confidence in the success of your efforts to eradicate this non-native invasive species. The legal authority to control invasive weeds such as Japanese knotweed is explained on the attached document.

Sincerely,

Nick Condos, Director
Plant Health and Plant Prevention Services

# COUNTY and STATE SUPPORT: A rated weed regulations

Page 2:
Existing law also provides that eradication regulations **may proclaim any portion of the State as an eradication area**….and **set forth….the methods to be used to eradicate said pest** (Food and Agricultural Code Section 5761)

# Concerns

- Detection success
- How will salmon habitat projects affect knotweed populations over time?
- Sustaining cross jurisdictional momentum so treatments will be in sync with the finite eradication window
- Funding and staffing constraints over time
- Tomales Bay vulnerability to knotweed

# NPS Knotweed Stem Counts
# projected through 2023*

| Efficacy | 2017 | 2018 | 2019 | 2020 | 2021 |
|---|---|---|---|---|---|
| 95% | 8111 | 635 | 31.8 | 1.6 | 0.08 |

*** provided no new introductions & 100% detection**

# Poised for success….

# A special thank you to

Andrea Williams
David Lewis
Eric Ettlinger
Eric Wrubel
Gordon White
Jim Chayka
Kat Knecht
Rachel Kesel
Sarah Phillips
Stacy Carlsen
Stefan Parnay
Tim Federal
Bree Hardcastle
Steve Swain
Mark Heath
Joe Woods
Dana Morawitz
Sarah Reed
Nikk Novero
Tara Larson
Dustin Nelson
Bill Miller

# QUESTIONS?

415-717-0471

# Spatial Analysis of NPS Knotweed Distribution


48% of knotweed sites located in inner creek bends (areas of deposition)

6% located in outer creek bends (areas of erosion)

46% located in straight stretches