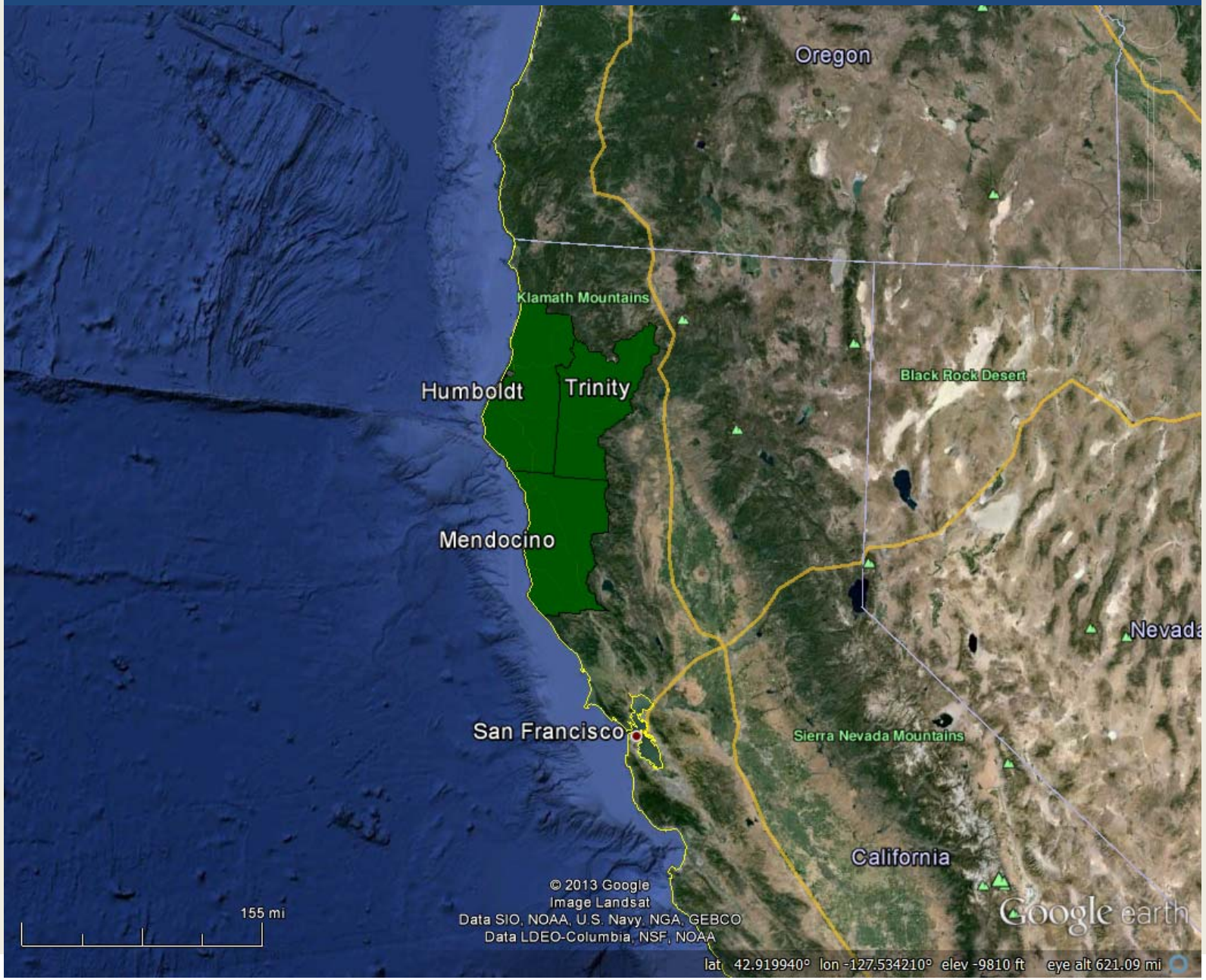
Environmental Impacts From Marijuana Cultivation on Private Lands: Scenes From the Trenches

Jen Olson, Scott Bauer, and Jane Arnold

Coastal Conservation Planning Branch, CDFW Eureka

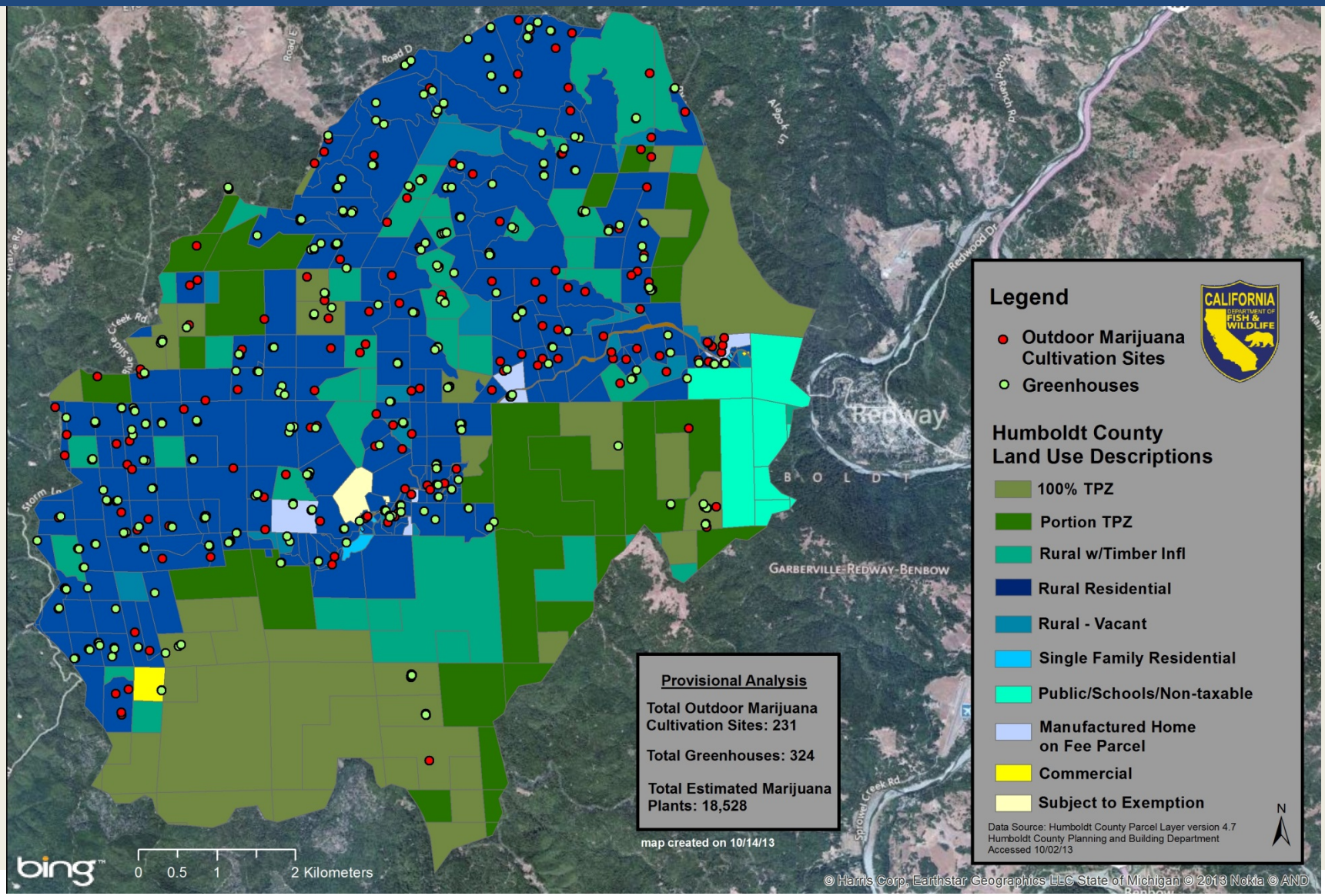
The Emerald Triangle



So, what's the problem?

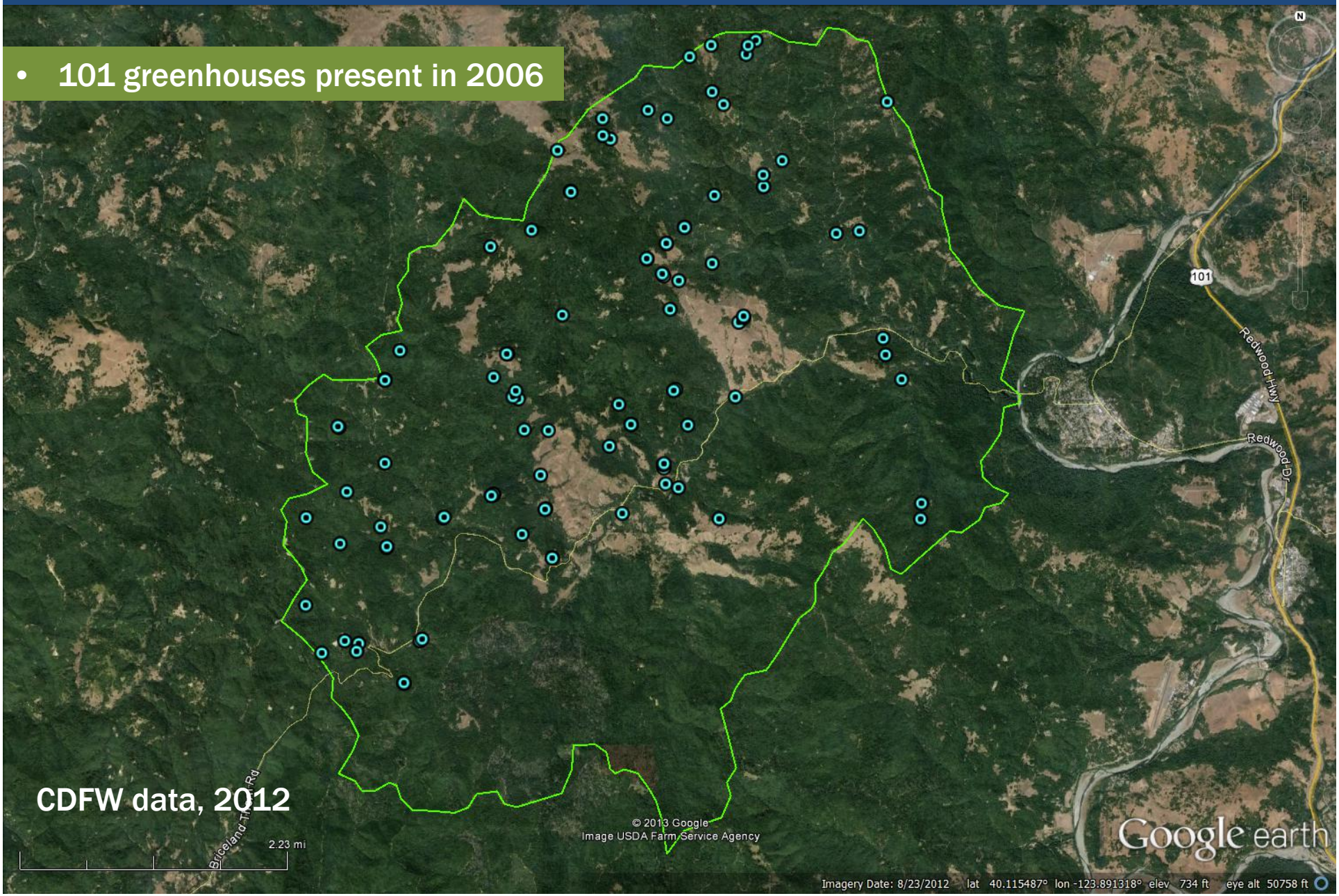
- Quasi-legal status (prop 215) increased growth in the industry, regulation lagging
- Price has dropped: requires larger operation to make the same money
- More investments and operations on private lands
- Environmental crimes are being committed, but enforcement is challenging: safety and access

Marijuana cultivation is common in rural areas, usually on private rural residential land



Increase in number and size of greenhouses

- 101 greenhouses present in 2006

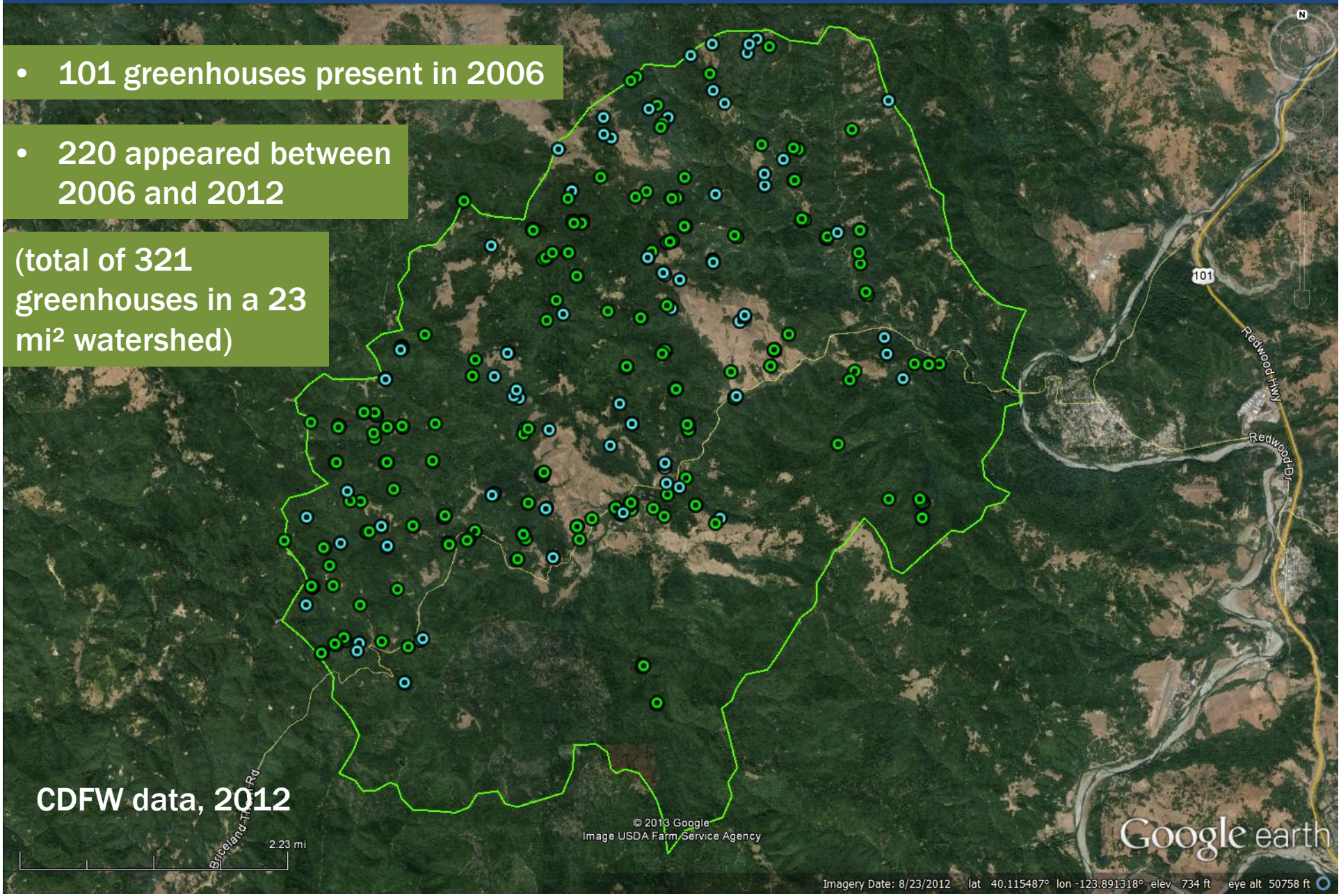


CDFW data, 2012

Increase in number and size of greenhouses

- 101 greenhouses present in 2006
- 220 appeared between 2006 and 2012

(total of 321 greenhouses in a 23 mi² watershed)



CDFW data, 2012

New techniques increase yield and extend growing season

Unique Law Enforcement and Habitat Conservation Partnership

Resource Impacts

- Water diversions: during low-flow periods, no screening, oversized pumps

Resource Impacts

- Conversion/fragmentation of lands

Resource Impacts

- No BMPS/no riparian or stream protection areas

Resource Impacts

- **Pollutants: sediment, petroleum products, fertilizers, killing agents**

Water Demands

“Spring fed” gardens

Illegal water diversions

Illegal water diversions

Streams diverted at the headwaters

Improper diversion screening

Habitat fragmentation: Post Mountain 2005-2012

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Grading and land clearing

Clearing for large grow operation

Illegal timber harvesting

No BMPs on roads or other construction features

Sediment delivery to streams from road rilling/gullying

Poorly constructed features

Poorly constructed features

Poorly constructed on-stream ponds reducing stream flows/no bypass flows

Pollutants near and in-stream

Red dye diesel spill directly into creek

Concrete, fertilizers & other chemicals, trash and debris deposited in and near streams

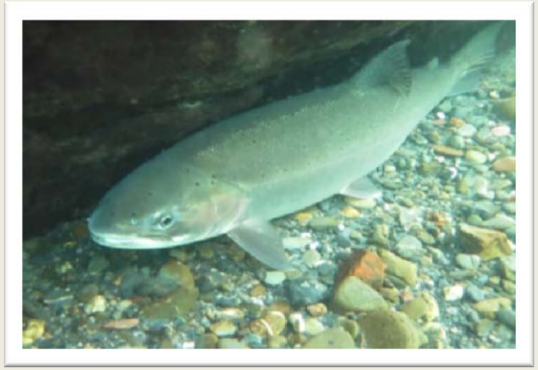
Septic directly to stream

Soil dumped near a grow above a creek – fertilizers and fungicides leach into creek below

Sediment delivery/lack of riparian buffers

Large scale sediment delivery

Impacts on fish and wildlife



Fine sediment covering gravel and aquatic habitat

Coho stream with heavy presence of grows upstream

Fall

Summer
(riffles de-watered)

Documented fish kills

Questions driving current and future research

- What happens if everyone switches on their pumps simultaneously?
- Where are people primarily diverting water?
- How has water quality changed during first fall flow event and overall?

THANK YOU

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