

Oregon Biocontrol

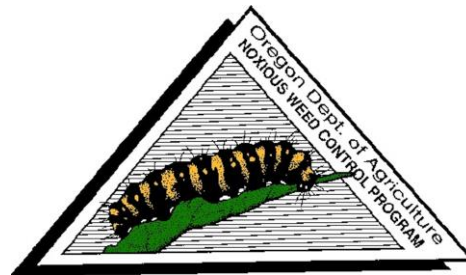
Joel Price

Biological Control Entomologist

Biosecurity & Invasive Species Initiative Workshop

December 10th, 2018

Hawaii



Invasive Species of Concern in Oregon

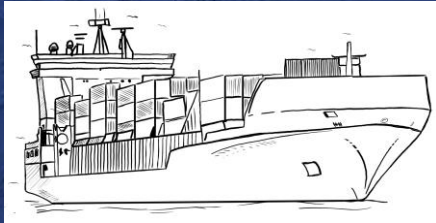
- Insect Pest Prevention and Management (IPPM)
 - Protect Oregon's natural resources and agricultural industries
 - Last 12 years...110 new exotic invertebrates detected in Oregon



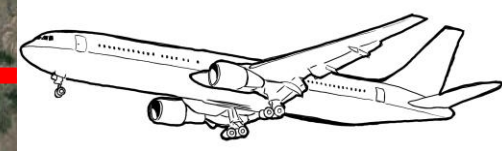
Japanese beetle
Popillia japonica



Brown marmorated stink bug
Halyomorpha halys

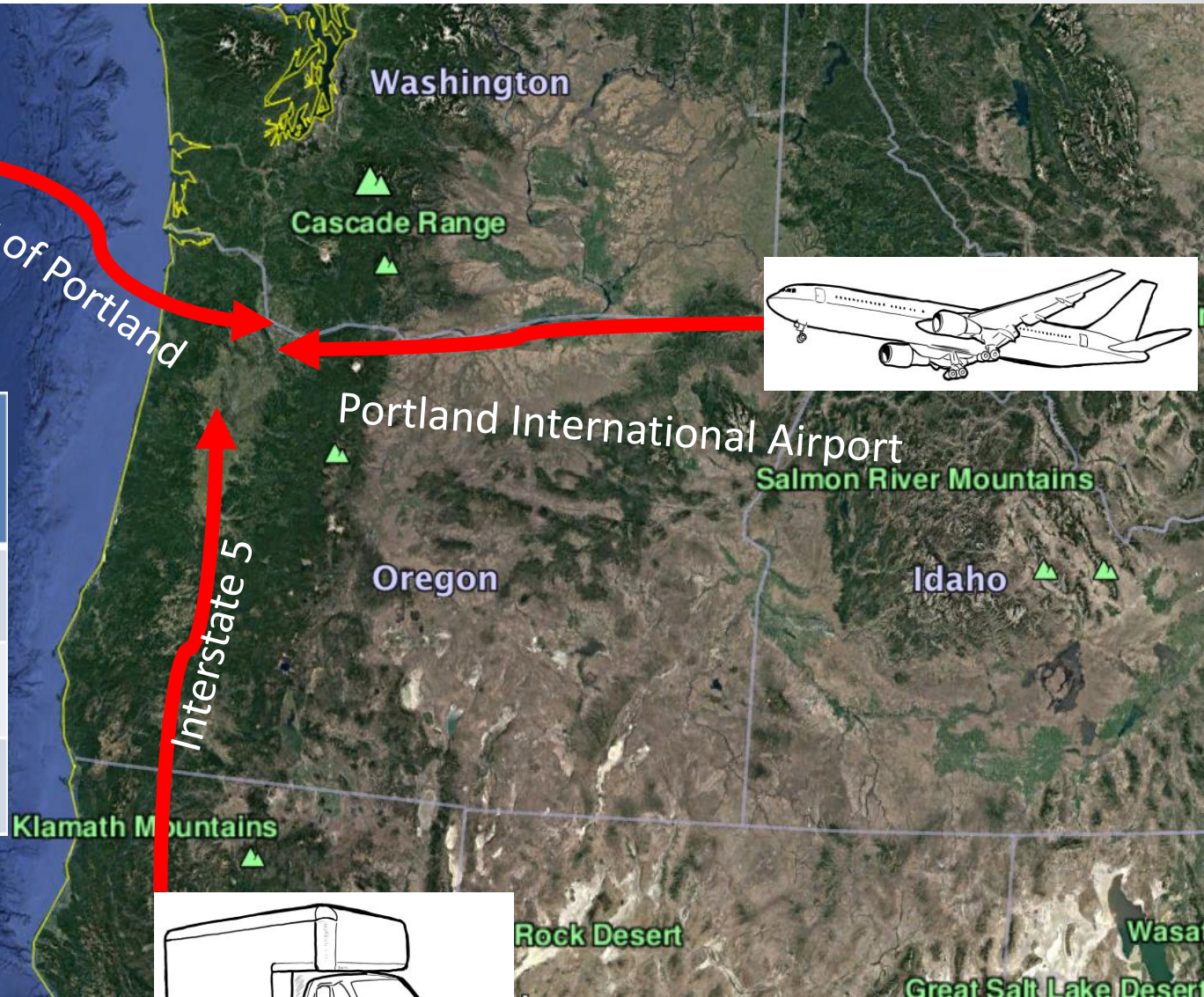
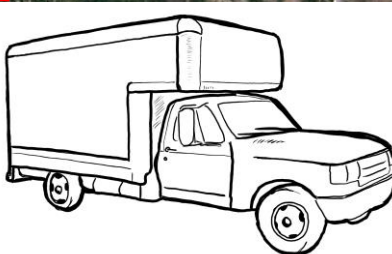


Port of Portland

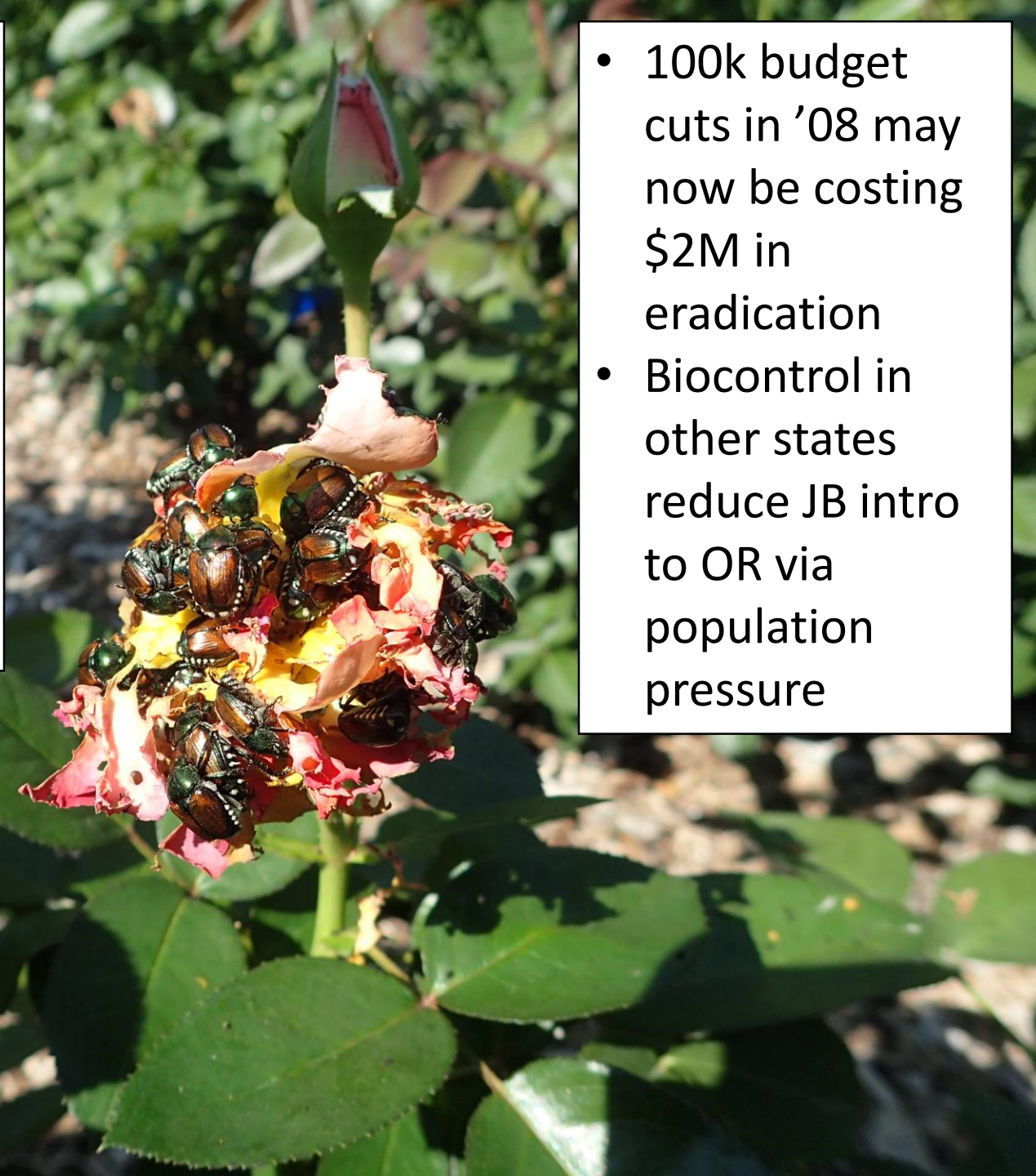


	Where Current Oregon Residents were Born
1.	Oregon 1,173,240 (42.9%)
2.	California 492,486 (18.0%)
3.	Washington 175,829 (6.4%)

Josh Lehner, 2018, OOE



- Oregon has largest JB infestation west of the Mississippi
- Serious threat to our agricultural economy
 - Nursery and turf industry
- OR could become quarantined



- 100k budget cuts in '08 may now be costing \$2M in eradication
- Biocontrol in other states reduce JB intro to OR via population pressure

- Oregon BMSB increasing
- ODA 1 of only 3 small agencies tasked with biocontrol of this serious pest





Ludwigia spp. (water primrose)

- Oregon Watershed Enhancement Board (OWEB)
 - Investing \$Millions
 - Flowering rush and/or *Ludwigia* could wipe out investments
- Aquatic noxious weed specialist position unfunded





Minto-Brown Park, Salem, OR, USA

Agriculture:

Irrigation clog
Chemical input

Recreation access:

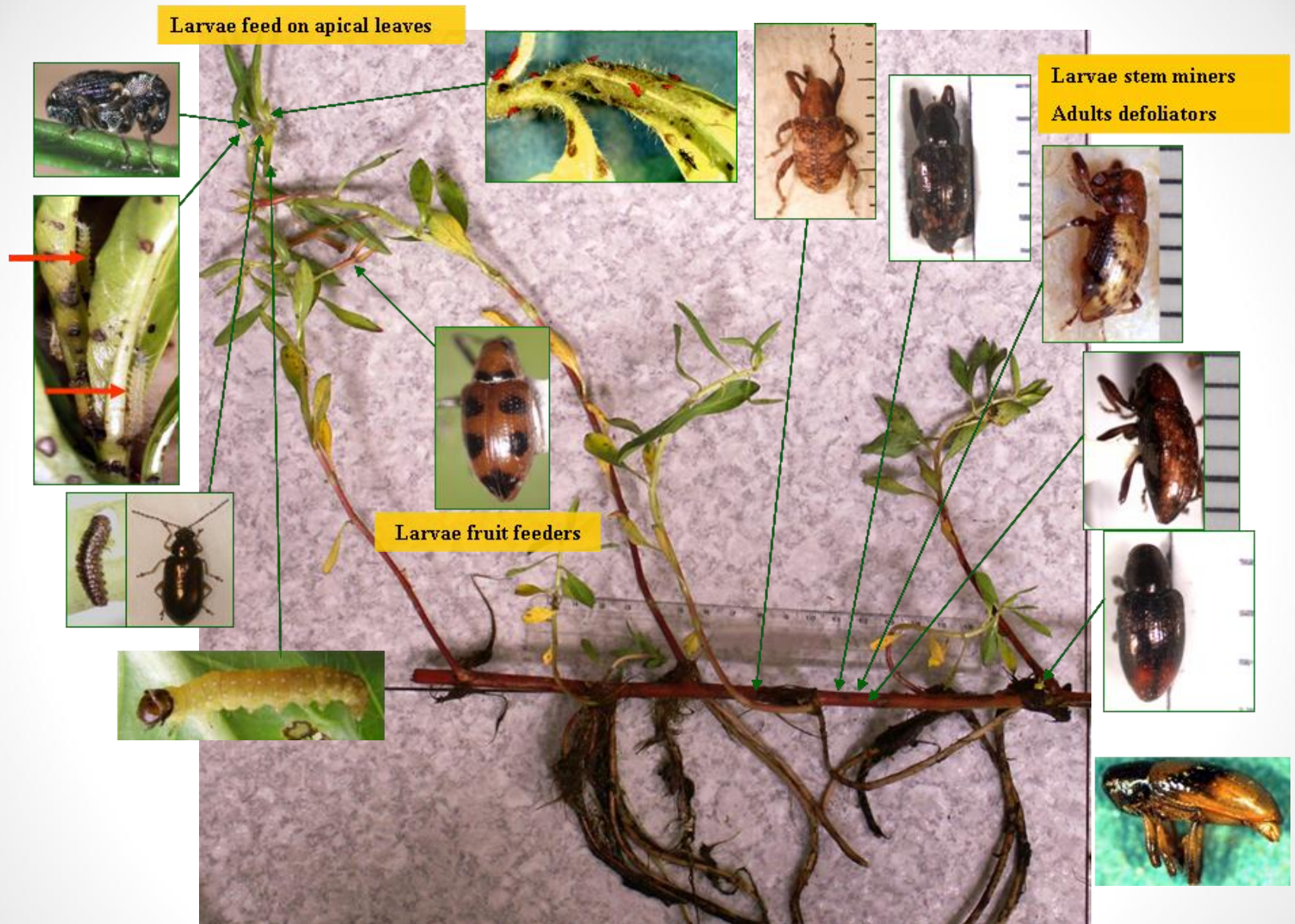
Boating
Fishing
Swimming

Environment:

Fish spawning
Species richness
Dissolved oxygen
Waterfowl feeding
Allelopathic

Human health:

Mosquito breeding

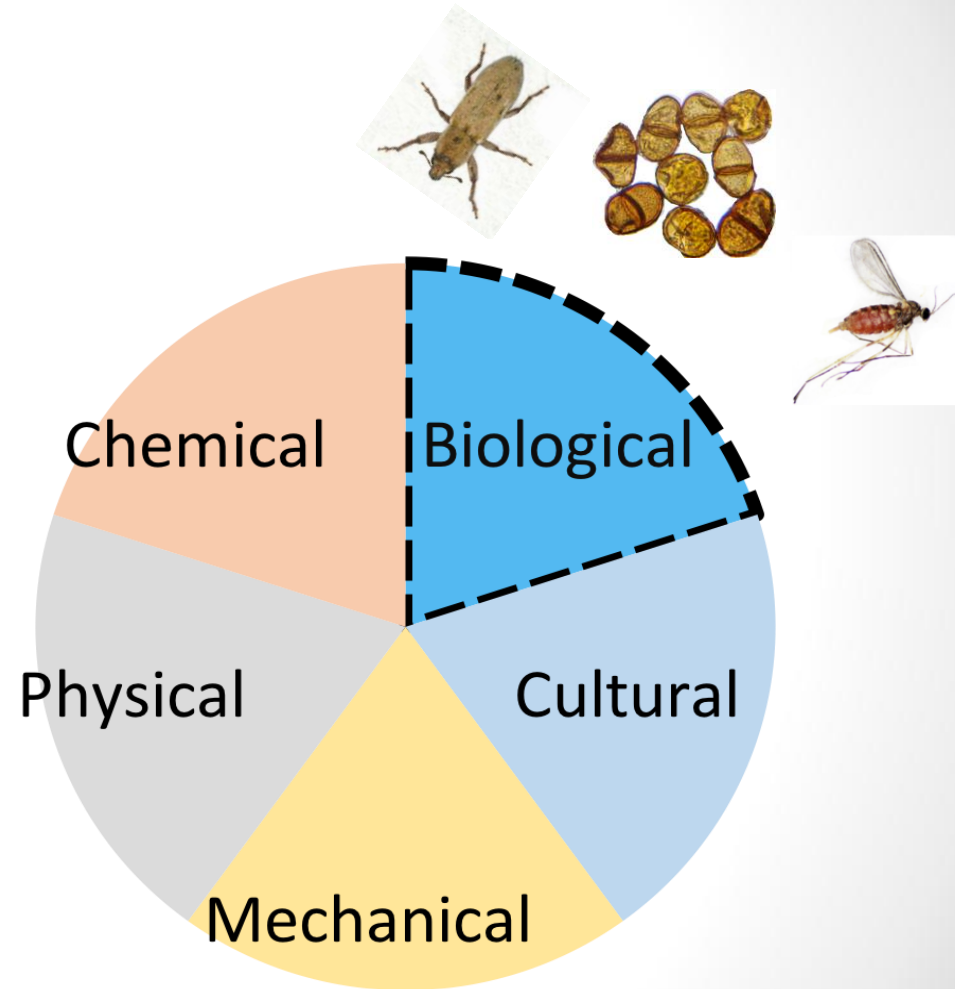


By Christina Hernandez, FuEDEI, Argentina

Integrated Pest Management

Benefits:

- Low risk
- Low cost
- Long-term
- Landscape-level
- Environmentally sensitive
 - T&E orchids
 - Food foraging area
- Hard-to-reach areas
 - Wild dog exhibits
 - Bombing ranges



Science Behind Biocontrol

- Technical Advisory Group (TAG), Est. 1987, 15 agencies from US, CA, MX
- CABI International Swiss Centre working within a network of over 200 scientists from 27 countries and 114 institutions.
- Safety
- In the majority of unpredicted cases (93.5%), the respective non-target plant species had not been tested pre-release
- There were only 4 cases of 'false negatives' (<1%), where the impacted plant species had been tested pre-release and deemed not at risk



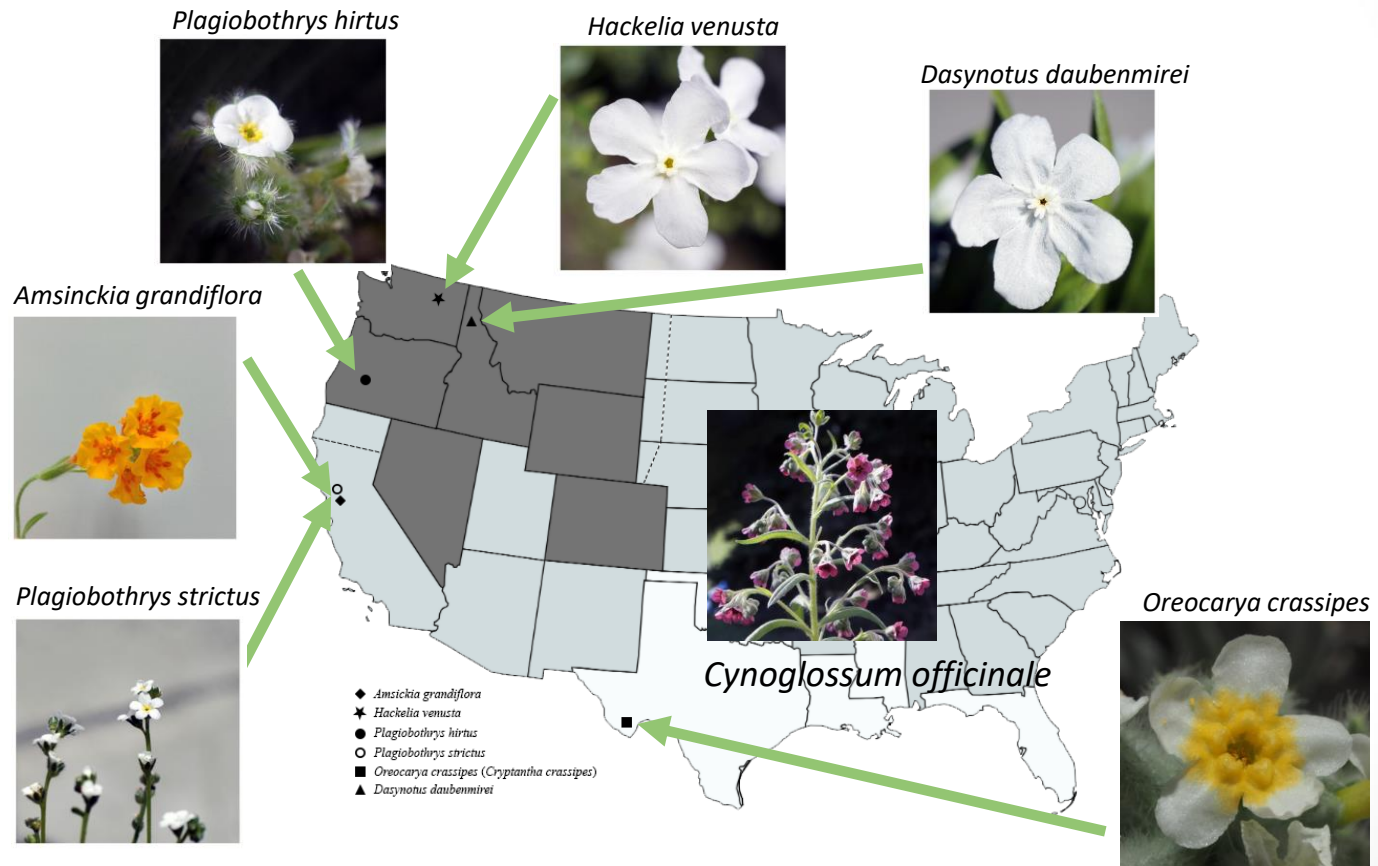
Biological control predictably very safe

Hinz H.L., Winston R.L. and Schwarzländer M.,

How safe is weed biological control? A global review of direct non-target attack, Quarterly Review of Biology – forthcoming 2019

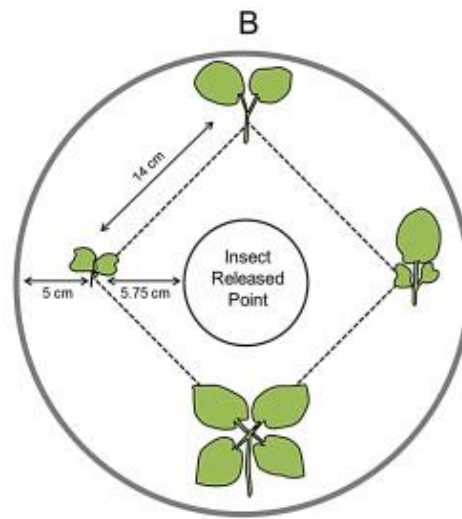
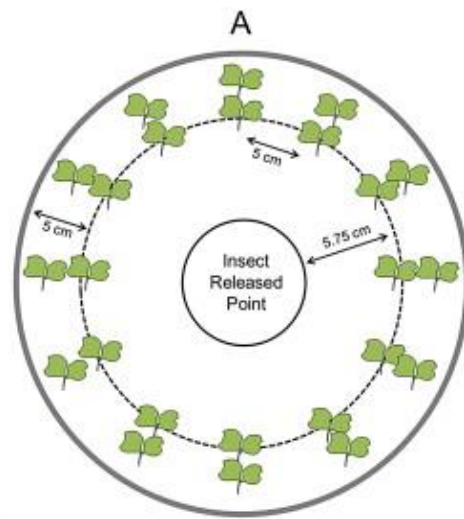
Plant Test List

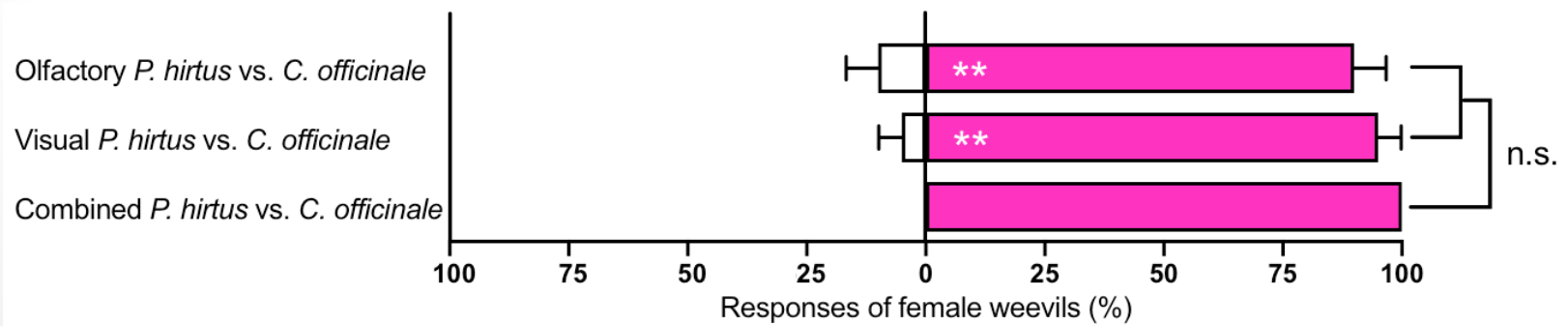
Mogulones borraginis (F.), (Coleoptera, Curculionidae),
seed-feeding weevil



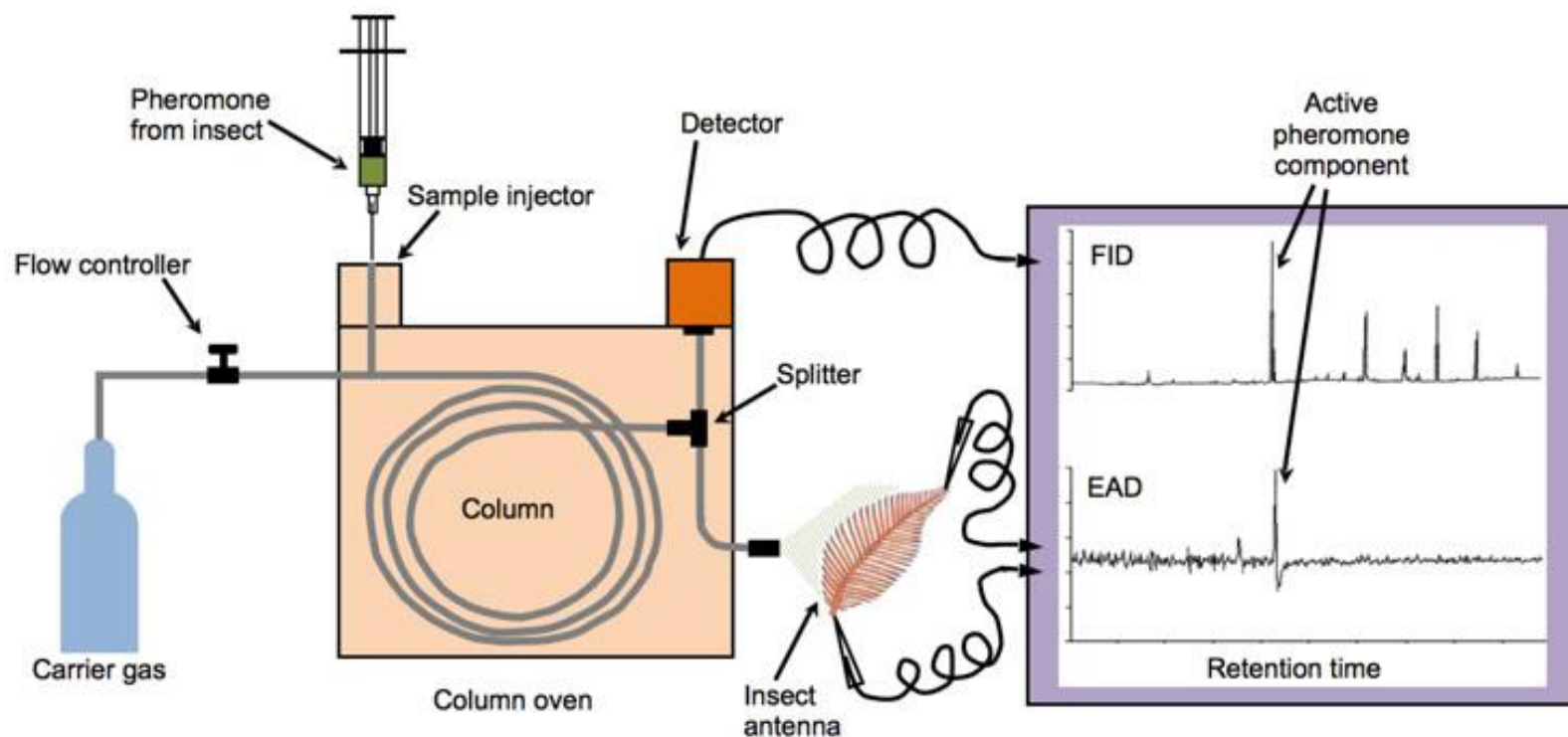


No-choice test, choice test, caged field test, open-field choice test



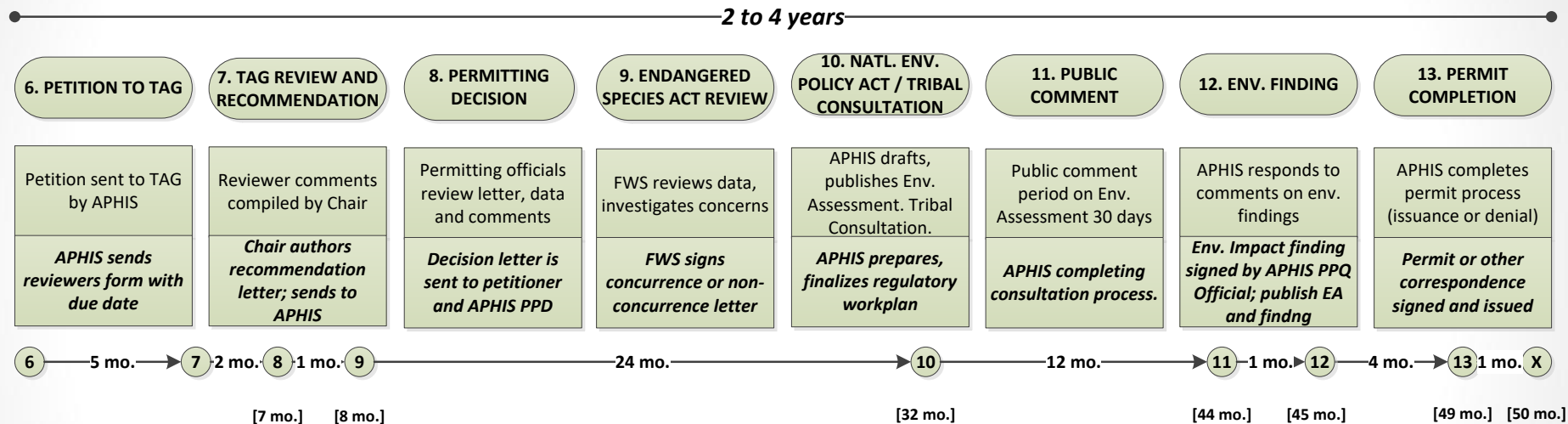


Electroantennography (EAG)



Permitting Process

Plant Pest Act (2000)



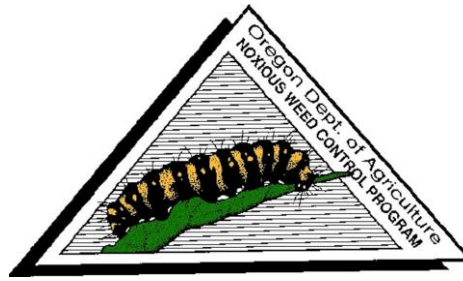
Current decision-making framework only considers risks,
not benefits.

OR-BC Est. 1947

- 78 species introduced on 27 plants
- 26 both widespread and effective
 - Tansy, St. Johnswort, Musk, Med. Sage, PLS, YST, Dalmatian TF, Diffuse KW
- >15k releases
- Tansy agents save \$5-10 million/yr
- Net benefit of biocontrol in OR = \$14.6 million/yr (2018 USD)



Federal



Private



NGO



Tribal

County



International



No New Agents 2011-2015



Lack of new students and loss of BC scientists.

XV International Symposium on Biological Control of Weeds Engelberg, Switzerland

- “A Clogged Biocontrol Pipeline: Time for a Solution”
 - Letters and summit internally with APHIS
 - Set 90 day review deadline for USFWS and shift final approval to TAG agent
 - Organizations to challenge APHIS on not considering benefits.
 - Congressional elevation - program review



2015

USFWS issued petitioner guidelines

2016

Removed signatory roadblocks paralyzed by fear of risk

2017

APHIS self-imposed due dates

Jeffrey Herod, USFWS, Branch of Environmental Review

2018

USFWS/APHIS monthly calls

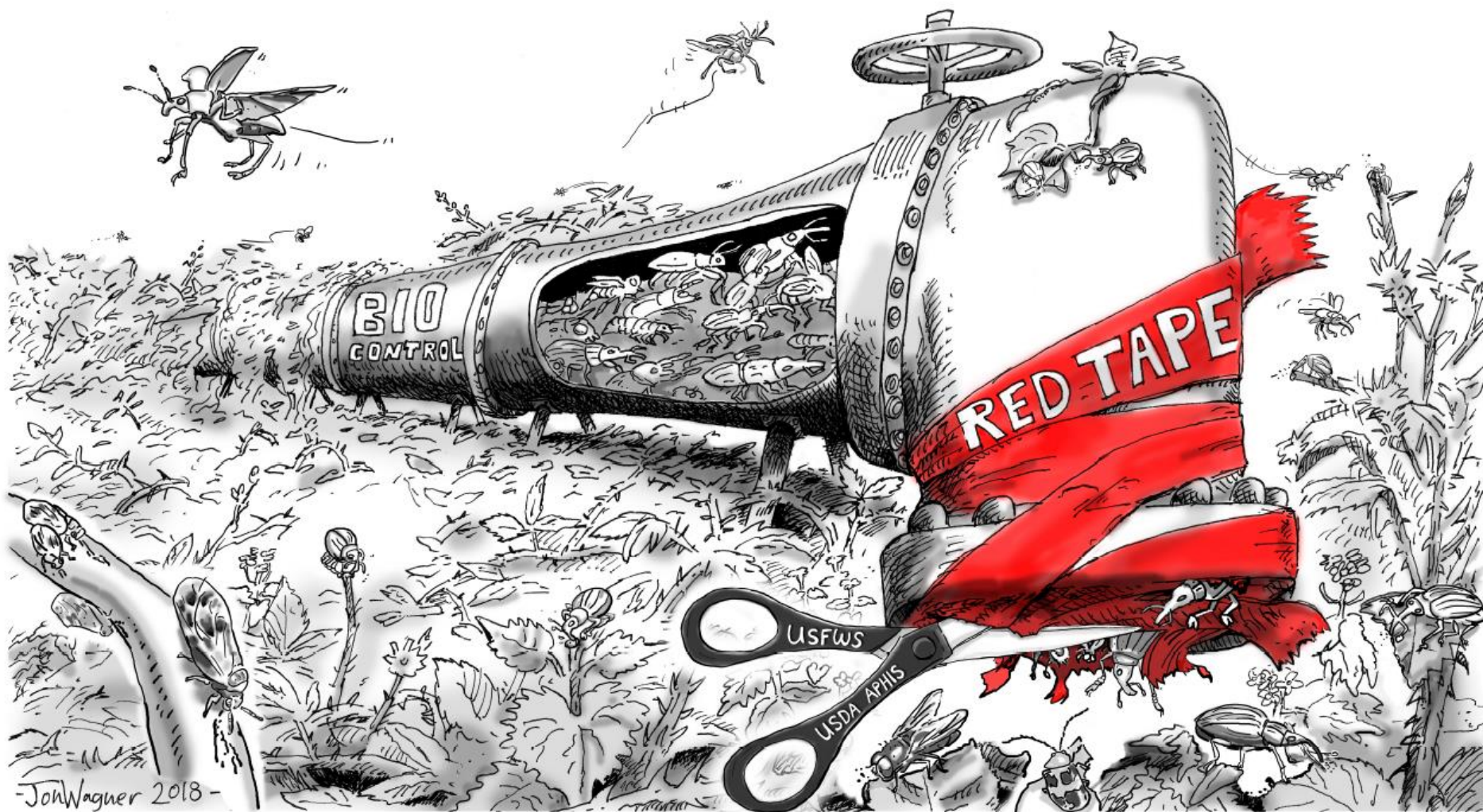
PPQ working on:

T & E benefit considerations

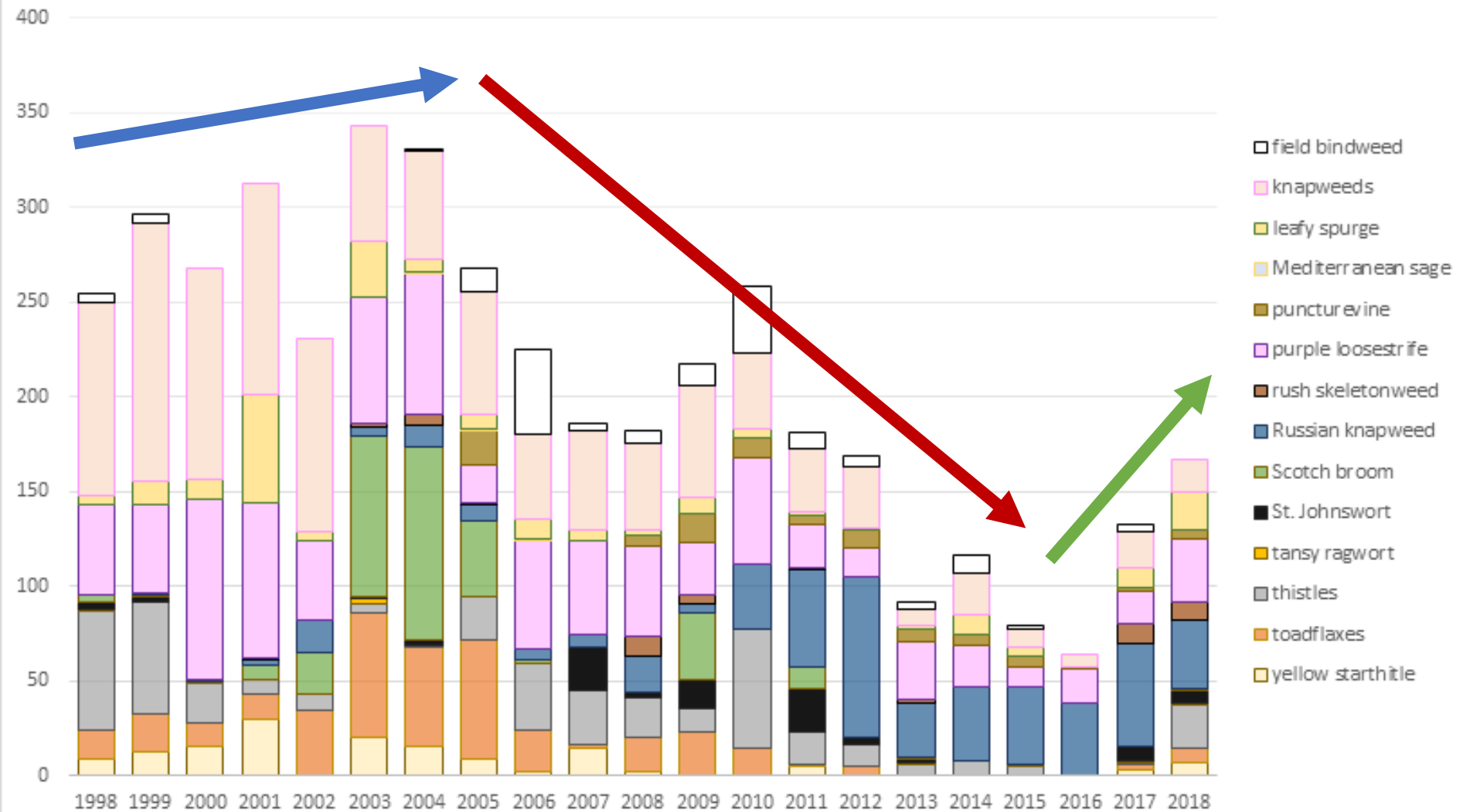
“330 Rule” deregulating established agents



-Jon Wagner 2015-



BIOCONTROL TARGET RECORDS, 1998-2018



Phone Applications



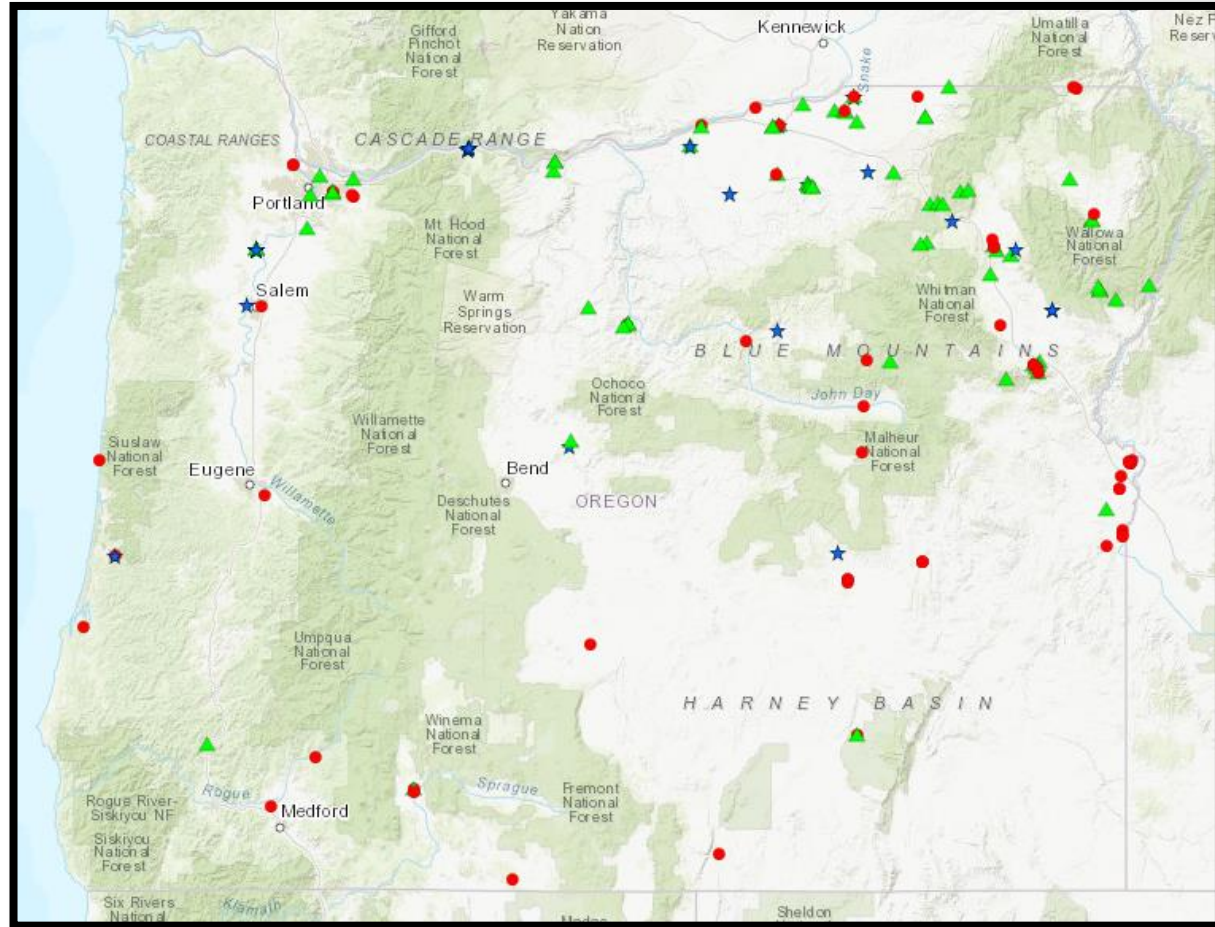
Survey123
SIMP



Collector
ArcGIS
APHIS



iBiocontrol
EDDMapS
Survey
Field guide



Summary

Biocontrol is:

- A sustainable, low-risk tool with significant net benefit to stakeholders
- Garnering federal government support and media attention
- Regaining speed and utility with new agent approvals



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Thank you:

- ODA office and field staff
- BLM and USFS cooperators
- USDA-APHIS-PPQ
- District and county weed managers
- CDA and NPBC Insectaries
- OSU, U of I, and MSU researchers
- Eric Coombs (ODA-retired)
- OSP, USFWS, TNC, and others



Oregon
Department
of Agriculture