Report Card, 2005

State: Oregon

Topic: Invasive Species Exclusion

Grade: "A-"

Comments: Nice job, Oregon! This year: i.) all 100 of the most dangerous species threatening to invade the state were successfully excluded or contained, ii.) only one listed species is in danger of becoming permanently established, iii.) progress was made in eradicating ramorum blight, iv.) most legislation favoring exclusion of invasive species passed, and v.) the first steps toward an invasive species awareness program were initiated. There is room for improvement in education/outreach, detection surveys, and feral swine eradication.

Prepared by:
Oregon Invasive Species Council

Martin Nugent, Chair
Oregon Dept. of Fish & Wildlife
3406 Cherry Ave., NE
Salem, OR 97303

Mark Sytsma
Sam Chan
Dan Hilburn
Suzanne Cudd
Risa Demasi
Kev Alexanian
Mandy Tu
Eric Schwamberger
Chris Guntermann
Randy Henry
Bill Reynolds

Invasive Species in Oregon
Report Card, 2005

Introduction

This year the Oregon Invasive Species Council gives Oregon a grade of "A-" for success at excluding invasive species in 2004. This compares to a "B" in 2004 and 2003 and a "B-" in 2002.

This report card is a product of the Oregon Invasive Species Council; its purpose is to summarize current efforts to exclude undesirable invasive species from Oregon.

The body of this report is divided into four sections: a summary of the Council activities, a list of the top 100 most dangerous species threatening to invade the state, a review of significant incidents, and an analysis of the effectiveness of Oregon's exclusion efforts in 2005.

2005 Council Activities

Meetings

The Invasive Species Council met this year in Salem (February), and The Dalles (June) and Tillamook (October). Minutes from these meetings are available on the Council webpage <www.oregon.gov/OISC>.

Education and Outreach

The Council focused on developing an educational/outreach strategy in 2005. A contract with Ant Hill Marketing resulted in a survey measuring the level of concern among members of the public. Five hundred and three adults were contacted by telephone: 30% felt that invasive species were of great concern; 41% had some concern, the rest had little or no concern or didn't know. Only 6% felt the issue of invasive species was being dealt with to a great extent; 54% chose somewhat and the rest not much, not at all or don't know.

Ant Hill Marketing also produced a Statewide Awareness Campaign Plan including: Research, Branding/Identity, Campaign Concept, Advertising, Collateral, Interactive, Youth Education, Public Relations, Partnerships, and Other Ideas. The estimated cost of the complete recommended campaign was $200,000 to $500,000. At the current time, the Council does not have resources at this level and will continue to concentrate on strategies within its limited budget while exploring fundraising ideas to raise money to implement an awareness campaign.

An educational program, spearheaded by Oregon Sea Grant, was launched to make teachers aware that some species offered in educational kits should not be released in the wild. Additional pencils advertising the toll-free hotline number (1-866-INVADER) were ordered. Approximately 3,000 have been distributed so far.

Awards

Each year the Council recognizes people and organizations that are making outstanding contributions to protecting the state from invasive species with the following awards:

Eagle Eye Awards -- presented to the person or persons reporting the most important sighting(s) of an invasive species. 2005 winners: **Mark Ernes,** for spotting New Zealand mudsnail in the Deschutes River; **Bob Donaldson** for discovering blackberry rust in Langlois; and **Barbara Shields** for reporting use of rusty crayfish in schools.

Outstanding Defender Award -- presented to the person(s)/organization (non-government) making the most outstanding contribution to protecting Oregon from invasive species. 2005 winner: **Hines Nurseries** for their successful *Phytophthora ramorum* eradication program.

Ten Fingers in the Dike Awards -- presented to the person(s) or unit in a government agency going above and beyond the call of duty to keep new invaders out of the state. 2005 winners: **Dave Langland** for his years of relentless suppression of noxious weeds in central Oregon including orange hawkweed; and **Jim LaBonte** for his outstanding taxonomic support of exotic woodborer surveys.

Invader Crusader Awards -- presented to the Oregon student(s) making a difference in protecting Oregon from invasive species. 2005 winners: **Chana Makale'a Duduoit** for her survey of Japanese eel grass; and **Laura** and **Seth Sherry** for their outstanding contributions to controlling Japanese knotweed in Lincoln County.

OISC Service Awards -- presented to members of the Oregon Invasive Species Council who are leaving after having completed at least one two-year term: **Sue Cudd**, council member 2002-5; **Risa Demasi**, 2002-5; and **Kev Alexanian,** 2002-5.

Reporting Hotline

The Council supports a centralized, toll-free number (1-866-INVADER) to encourage sightings of all types of invasive species. Information received from calls to the hotline is referred to the appropriate agency for any necessary follow-up. This year there were an average of 55 calls per month.

Webpage

The Council's webpage was separated from the Department of Agriculture's webpage in 2005 and updated to include more information about Council activities. The address is: <www.oregon.gov/OISC>

Information Sharing Network

Since its inception, the Council has maintained an information-sharing network to connect people and organizations in the state that have an interest in invasive species. Short documents are sent out via email, FAX, or regular mail. Anyone interested in invasive species in Oregon is invited to join the network by contacting: Dan Hilburn, ODA Plant Division, 635 Capitol St. NE, Salem, OR 97301; 503-986-4663; <dhilburn@oda.state.or.us>.

Action Plan

The Council updated the statewide invasive species act plan again in 2005. The latest version is available online at:
<http://www.oregon.gov/OISC/reports.shtml>

The goal of the Action Plan is to facilitate efforts to keep invasive species out of the state, find invasions before they establish permanent footholds, and do whatever it takes to eradicate incipient populations of undesirable species. Exclusion, early detection and rapid response are by far the most cost-effective ways of dealing with undesirable invaders. Education and cooperation are key components to an effective strategy.

Legislation

Five bills in the 2005 legislative session related to invasive species; four of them passed. The bill that failed would have created a noxious weed control fund. The bills that passed: 1.) identified the State Department of Agriculture as the primary state agency coordinating noxious weed control programs, 2.) created a plant pest and disease emergency fund for nurseries, 3.) eliminated the sunset on civil penalties for quarantine violations, and 4.) regulated the discharge of ballast water. Council members testified on all of these bills.

100 Most Dangerous Invaders Threatening Oregon in 2005

The Council developed the following list of least wanted species for 2005. These organisms threaten to invade at any time and available information allows us to predict that they would have a serious negative economic or ecological impact if they were to become established in the State. Eradication should be seriously considered if incipient populations are found. The costs of eradication are likely to be much less than the impacts associated with permanent establishment. The Council updates this list annually and our record of success or failure at exclusion of these species is reported in this annual report card and tracked by the Oregon Progress Board.

Micro-Organisms

alder root rot	*Phytophthora* sp.
cherry leaf roll	cherry leaf roll nepovrius (CLRV)
chronic wasting disease	CWD prion
elm yellows	elm yellows phytoplasma
golden nematode	*Globodera rostochiensis*
hazelnut bacteria canker	*Pseudomonas avellanae*
infectious salmon anemia virus	ISAV
oak wilt	*Ceratocystis fagacearum*
pear trellis rust	*Gymnosporangium fuscum*
Phytophthora taxon C	*Phytophthora kernovii*
plum pox	plum pox potyvirus (PPV)
poplar canker	*Xanthomonas populi*
potato cyst nematode	*Globodera pallida*
potato wart	*Synchytrium endobioticum*
ramorum blight (a.k.a. sudden oak death)	*Phytophora ramorum***
Sheep Pen Hill virus	carlavirus (BBScV-NJ)
whirling disease	*Myxobolus cerebralis***
willow watermark disease	*Erwinia salicis*

Aquatic Plants

African waterweed	*Lagarosiphon major*
caulerpa seaweed	*Caulerpa taxifolia*

cordgrasses	*Spartina alterniflora*, S. densiflora, S. anglica*
dead man's fingers	*Codium fragile tomentosoides*
European water chestnut	*Trapa natans*
giant salvinia	*Salvinia molesta*
golden algae	*Prymnesium parvum*
hydrilla	*Hydrilla verticillata*
toxic cyanobacteria	*Cylindrospermopsis raciborskii*
yellow floating heart	*Nymphoides peltata***

Land Plants

African rue	*Peganum harmala***
camelthorn	*Alhagi pseudalhagi*
cape ivy	*Senecio mikanioides***
coltsfoot (not *Petasities frigidus*)	*Tussilago farfara***
giant hogweed	*Heracleum mantegazzianum***
giant reed grass	*Arundo donax***
goatgrasses (barbed, ovate)	*Aegilops triuncialis, A. ovata*
hawkweeds (king-devil, meadow, mouse-ear, orange, yellow)	*Hieracium piloselloides, H. pratense**, H. pilosella, H. aurantiacum**, H. floribundum*
kudzu	*Pueraria lobata***
matgrass	*Nardus stricta***
mile-a-minute weed	*Polygonum perfoliatum**
Paterson's curse	*Echium plantagineum***
Portugese broom	*Cytisus striatus***
purple nutsedge	*Cyperus rotundus*
silverleaf nightshade	*Solanum elaegnifolium*
skeletonleaf bursage	*Ambrosia tomentosa*
squarrose knapweed	*Centaurea virgat*a**
starthistles (Iberian, purple)	*Centaurea iberica**, C. calcitrapa***
Syrian bean-caper	*Zygophyllum fabago*
Texas blueweed	*Helianthus ciliaris*
thistles (plumless, smooth distaff, woolly distaff)	*Carduus alanthoides**, Carthamus baeticus, Carthamus lanatus***

Aquatic Invertebrates

Asian clam	*Potamocorbula amurensis*
Asian tapeworm	*Bothriocephalus acheilognath*
fishhook waterflea	*Cercopagis pengoi*
Japanese shore crab	*Hemigrapsus sanguineus*
Japanese oyster drill	*Ceratostoma inornatum*
Leidy's comb jelly	*Mnemiopsis leidyi*
mitten crabs	*Eriocheir spp.**
New Zealand isopod	*Sphaeroma quoyanum*
New Zealand sea slug	*Philine auriformis*
quagga mussel	*Dreissena bugensis*
rusty crayfish	*Orconectes rusticus*
sea squirt	*Didemnum lahillei*
spiny waterflea	*Bythotrephes cederstroemi*
veined rapa whelk	*Rapana venosa*
zebra mussel	*Dreissena polymorpha*

Land Invertebrates

Africanized honey bee	*Apis mellifera scutellata*
Argentine ant	*Linepithema humile**
Asian longhorned beetles	*Anoplophora glabripennis, A. chinensis*
blueberry maggot	*Rhagoletis mendax*

brown spruce longhorn beetles	*Tetropium fuscum, T. castaneum**
decollate snail	*Rumina decollata*
emerald ash borer	*Agrilus planipennis*
European chafer	*Rhizotrogus majalis*
European corn borer	*Ostrinia nubilalis*
European woodwasp	*Sirex noctilio*
glassy-winged sharpshooter	*Homalodisca coagulata**
gypsy moths (European, Asian, pink, nun moth)	*Lymantria dispar*, L. mathura*, L. monacha*
imported fire ants (red, black)	*Solenopsis invicta*, S. richteri*
Japanese beetle	*Popillia japonica**
Japanese cedar longhorned beetles	*Callidiellum rufipenne, C. villosulum**
khapra beetle	*Trogoderma granarium**
Mexican bean beetle	*Epilachna varivestis*
old world bollworm	*Helicoverpa armigera*
Oriental beetle	*Anomala orientalis*
plum curculio	*Conotrachelus nenuphar*
pine shoot beetle	*Tomicus piniperda*
red haired pine bark beetle	*Hylurgus ligniperda*
sawyers	*Monochamus urussovi*, M. alternatus**
Siberian moth	*Dendrolimus superans*
silver Y moth	*Autographa gamma*
spruce bark beetle	*Ips typographus*

Fish

Asian carp (bighead, silver)	*Hypophthalmichthys nobilis, H. molitrix*
Atlantic salmon	*Salmo salar*
black carp	*Mylopharyngodon piceus*
muskellunge, northern pike, tiger muskie	*Esox spp.**
round goby	*Neogobius melanostomas*
ruffe	*Gymnocephalus cernuus*
Shimofuri goby	*Tridentiger bifasciatus*
snakeheads	*Channa spp.*

Birds

mute swan	*Cygnus olor*

Mammals

feral swine	*Sus scrofa****

*Detected previously in Oregon, but eradicated or did not establish.
**Currently under eradication or restricted to a small area in Oregon.
***In danger of becoming permanently established.

Significant Incidents in 2005

Oregon continues to be bombarded with undesirable invasive species. Many are intercepted, some incipient populations are discovered and eradicated, and regrettably a few escape and become permanently established. The following list documents important invasive species detections and actions taken in 2005. Note that interceptions at the ports of entry are not included; the incidents listed below involve species that have already penetrated our national

border protection system. Twenty-five similar incidents were documented in the 2002, 30 in 2003, and 28 more in 2004.

January

1. Second record of brown marmorated stinkbug, *Halyomorpha halys*, was confirmed in Portland, others followed, establishment confirmed in June.

2. First Oregon record of mangold flea beetle, *Chaetocnema concinna*, was confirmed. Specimens had been collected in Mt. Angel from strawberries in summer 2004 by a crop consultant.

February

3. Residents who had visited Hawaii found ghost ant, Tapinoma melanocephalum, in a house in Portland. Exterminated by a pest control company.

4. Brown marmorated stinkbug was found in Salem. This was the first find outside of Portland.

5. A USDA inspector found Ragi and Kodri millets, *Eluesine coracana* and *Paspalum scrobiculatum*, both federally-listed noxious weed, in Indian markets in Portland.

March

6. Ramorum blight, *P. ramorum* (a.k.a. sudden oak death) was found at an Oregon nursery. This was the first positive site in Oregon in 2005; ten more production nurseries, four retail nurseries, and six landscape sites that had received infected plants were found to be positive later in the season.

April

7. Specimens of *Monarthrum mali*, *M. fasciatum,* and *Xylosandrus crassiusculus* were indentified from samples collected in The Dalles in March. These wood boring beetles were associated with green railroad ties imported from the Southeast.

8. Small hive beetle, *Aethina tumida*, was collected from a beehive in Medford. This was the first record of this African pest of honeybee hives in the state. Subsequently reported to be exterminated.

9. Blackberry rust, *Phragmidium violaceum*, was officially confirmed as the cause of dieback in Himalayan blackberry in Curry County. This species has been used as a biological control of weedy blackberries in Chile and Australia.

May

10. An exotic slug, *Testacella haliotidea*, was found in Eugene and Salem. It feeds on earthworms and other slugs.

June

11. Giant hogweed, *Heracleum mantegazzianum*, was confirmed in Polk County. All 79 known sites in the state are under eradication. The largest site, along a 2-mile stretch of Fanno Creek in Washington Co. was first treated in 2004 and retreated in 2005.

12. Patterson's curse, *Echium plantagineum*, was confirmed from two yards in Salem. Thought to have been introduced in wildflower seed mixes.

13. Daylily rust, *Puccinia hemerocallidis*, was found at a nursery outlet in Salem by a visiting nurseryman.

14. *Xylosandrus germanus*, an exotic ambrosia beetle, identified for the first time at a Clackamas Co. nursery in Oregon from a trap sample collected in April. Previously in Oregon, this exotic wood borer was unknown outside of Multnomah County.

15. Blackberry rust was found on commercial evergreen blackberry on Sauvie's Island. This rust was later reported infecting Himalayan and evergreen blackberries in 16 western Oregon counties. Evergreen blackberry growers reported severe losses due to the disease.

16. Two species of European wireworm were detected in new Oregon counties; *Agriotus lineatus*, in Columbia Co. and *A. obscurus* in Multnomah Co.

July

17. Eight small clumps of *Spartina alterniflora* were found in Coos Bay; all plants were pulled.

18. One *S. alterniflora* plant was found at a site on the Siuslaw River. Suspected to be regrowth from a previous infestation, which was declared eradicated in 1997 after three years of monitoring following mechanical and chemical control measures. Plant was pulled.

19. Small broomrape, *Orobanche minor*, was found in Ainsworth Park, Multnomah Co. This parasitic weed was previously known only from clover fields in the northern Willamette Valley.

20. Additional infected trees were found in the *P. ramorum* quarantine area in Curry County. By the end of 2005 another 18 acres of infected trees were cut and burned. This brings the total number of infected and treated acres to 88 since 2001.

21. Four Japanese beetles, *Popillia japonica*, were caught near Portland International Airport. Eradication treatments were applied.

22. Trees and shrubs on eight hundred acres of industrial, commercial and residential properties in The Dalles were treated to prevent establishment of *X. crassiusculus*.

23. Two species of bark beetles in the genus *Hypothenemus* were detected alive in bamboo stakes from China at an Oregon nursery. Both species were new to science.

24. Oak timberworm, *Arrhenodes minutus*, and hickory ambrosia beetle, *Xyleborus celsus*, were caught in a light trap in The Dalles. Both are eastern U.S. natives.

25. *Euplatypus compositus*, an eastern U.S. native pinhole borer, was trapped in The Dalles.

26. A single specimen of *Hylesinus criddlei*, an eastern bark beetle that attacks ash trees, was identified from a sample collected in April in Hermiston.

August

27. A freshwater jellyfish, *Craspedcusta sowerbii*, was reported from a private pond in Merlin. It is suspected to have been in the state for many years.

28. New Zealand mudsnail, *Potamopyrgus antipodarum*, was found in a coastal lake near Florence and in Dean's Creek Elk Viewing Area near Umpqua.

29. The ringed crayfish, *Orconectes neglectus*, was reported from the John Day River.

30. Nine gypsy moths, *Lymantria dispar*, were detected statewide: Portland (2), Wilsonville, Tualatin, Eugene (2), Bend and Shady Cove (2).

31. Griffen's isopod, *Orthione griffenis*, was identified as a possible introduced species in several Oregon estuaries. Debate continues as to the status of this mud shrimp parasite as an introduced species.

September

32. Orange hawkweed, *Hieracium aurantiacum*, was discovered at a Redmond nursery. 150 plants were confiscated and destroyed. Resulting publicity leads to a dozen landscape sites where this weed has been planted. All were treated.

33. A second application of insecticide was applied to the trees and shrubs on 400 acres in The Dalles in an attempt to eradicate *X. crassiusculus*.

34. New Zealand mudsnail was found in the lower Deschutes River and reported from Coffenbury Lake near Warrenton.

October

35. Silverleaf whitefly, *Bemisia tabaci*, biotype Q was detected in an Oregon greenhouse.

November

36. Several stream samples in and around the Curry County *P. ramorum* quarantine area tested positive. An infected tree is found upstream from one of these sites, outside the current quarantine area. The quarantine area will be expanded.

37. *Hecatera dysodea*, a Eurasian moth, was found in The Dalles. Caterpillars of this species feed on *Lactuca* (lettuce) and *Sonchus* (sowthistle) flowers and seeds.

38. Columbia root knot nematode, *Meloidogyne chitwoodii*, was found in Klamath Co. potato fields. This parasite was previously believed to be restricted to the Columbia River basin.

Major Incidents Elsewhere with Implications for Oregon

39. European wood wasp, *Sirex noctillio*, was trapped in Fulton, NY. This Eurasian species is a serious pest of pines. In November *S. n.* was confirmed in Ontario, Canada. This species is on Oregon's list of 100 Most Dangerous Invaders.

40. Live Asian longhorned beetles, *Anoplophora glabripennis*, was found in a warehouse in Sacramento, CA belonging to a company that imports slate and tile from China. This species is on Oregon's list of 100 Most Dangerous Invaders.

41. Emerald ash borer, *Agrilus planipennis*, containment/eradication in Michigan was unsuccessful in 2005. The insect has spread into northern Indiana, Ohio and Ontario, Canada. This species is on Oregon's list of 100 Most Dangerous Invaders.

Analysis -- How Did We Do in 2005?

Ecologically and economically, it would be desirable to keep all of the organisms on the 100 Most Dangerous Invaders list out of the state. Realistically, 100% success is not feasible; the "ambitious but realistic" target set for our state by the Oregon Progress Board is 99% success each year. Benchmark #89 measures the "Number of most threatening invasive species not successfully excluded or contained since 2000." Oregon has done well at exclusion, meeting our target of five or fewer species from the annually updated list of 100 Most Dangerous Invaders becoming permanently established by 2005. In the five years since the benchmark was established only one species from the list has become established, New Zealand mudsnail.

One species from the 2005 list is thought to be in danger of becoming permanently established: feral swine. A risk assessment of the feral swine problem in Oregon was completed in 2004 by Oregon State University. The

potential for serious economic and ecological damage is high. Little if any progress toward eradication of existing populations was made in 2005 though several discussions on possible courses of action took place at Council meetings.

The fight against ramorum blight (a.k.a. sudden oak death) continued this year. Positive samples were collected at 15 Oregon nurseries in 2005. Though this is a small percentage of the total tested (approximately 1300) it continues a trend of finds in nurseries each year since 2002. This suggests introductions continue and our exclusion, detection and eradication programs are not as effective as they need to be. Thankfully, there is hope. Quicker and more accurate diagnostic tests are on the horizon and certification programs for nurseries incorporating practices designed to minimize the threat of disease introduction and establishment are being developed. The next few years will be pivotal.

Surveys for many of the 100 Most Dangerous Invaders were completed and eradication projects targeting 9 listed species were carried out in 2005: ramorum blight, giant hogweed, meadow hawkweed, kudzu, Patterson's curse, purple starthistle, distaff thistle, gypsy moth and Japanese beetle. In addition, a large eradication program in The Dalles targeted *Xylosandrus crassiusculus*, an Asian ambrosia beetle introduced on green railroad ties.

Conclusion

Nice job, Oregon! Considering that: i.) all 100 target species were successfully excluded or contained this year, ii.) only one species from the list is in danger of becoming permanently established, iii.) progress was made in eradicating ramorum blight, iv.) most legislation favorable to exclusion of invasive species passed, and v.) the first steps toward an awareness program were initiated; Oregon's grade for 2005 from the Oregon Invasive Species Council is an "A-." There is room for improvement in the areas of education/outreach, detection surveys for the listed species, and eradication of feral swine.