Confederated Tribes *of the*
Umatilla Indian Reservation

Board of Trustees & General Council

46411 Timíne Way • Pendleton, OR 97801
(541) 429-7030 • fax (541) 276-3095
info@ctuir.org • www.umatilla.nsn.us

March 2, 2015

The Honorable Representative Brad Witt, Chairman
House Committee on Agriculture and Natural Resources
900 Court Street NE, Room 347,
Salem, Oregon 97301

Dear Chair Witt and Committee Members:

The Confederated Tribes of the Umatilla Indian Reservation (CTUIR) opposes the importation and growing of Arundo donax. Arundo donax is a noxious weed and an invasive species that should not be imported into the State of Oregon for use any use, including as a biofuel. Arundo donax has been grown in Morrow County, which, like Umatilla County, is over-appropriated for surface and ground-water and cannot support another product that is as water-intensive as Arundo donax. The CTUIR, Oregon Department of Fish and Wildlife and Oregon Watershed Enhancement Board as well as various federal and state partners have spent millions of dollars to restore habitat and flows in the basins, efforts that are threatened by introduction of a crop that has a potential to escape and destroy the ecosystems we've sought to protect. The CTUIR supports the use of biofuels but does not support the introduction and use of invasive, noxious weeds as biofuel. House Bill 2183 would legislatively allow the growing of Arundo donax statewide with minimal controls to prevent and address escape.

Attached is a letter the CTUIR provided to the Oregon Department of Agriculture on the threats posed by importing and growing Arundo donax as well as our recommendations regarding state adopted rules to restrict growth of Arundo donax. While few if any of our recommendations were incorporated into the rulemaking regarding the control area for Arundo donax, at least the agricultural rules can be changed administratively. Adopting a legislative rule for Arundo donax makes it even harder to place further restrictions on its growth beyond an outright statewide ban.

Arundo donax is currently being grown by PGE as an alternative fuel source for their Boardman coal fired power plant which will quit burning Coal December 31, 2020. PGE has assured the CTUIR, the State of Oregon and local residents that they can control Arundo donax. The CTUIR has seen invasive products brought into the region for economic uses that have escaped and done enormous damage, such as cheatgrass, brought in as a food for cattle, and yellow tuft allysum, brought in for nickel mining, and many more herbal and ornamental plants that have damaged the destroyed the habitat for our First Foods. Please do not legislatively allow Arundo donax to be brought into the region.

Sincerely,

Gary Burke

Gary Burke, Chair
Board of Trustees

Confederated Tribes of the
Umatilla Indian Reservation

Board of Trustees

46411 Timíne Way
Pendleton, OR 97801

www.ctuir.org email: info@ctuir.org
Phone 541-276-3165 Fax: 541-276-3095

November 7, 2012

Sue Gooch, Rules Coordinator
Oregon Department of Agriculture
635 Capitol St. NE
Salem, OR 97301-2532

Delivered Electronically to Susan.C.Gooch@state.or.us

Dear Ms. Gooch:

The Confederated Tribes of the Umatilla Indian Reservation (CTUIR) would like to voice our opposition to the commercial planting and growing of Arundo Donax. *A. donax* has been determined to be a noxious weed and invasive species by California, Nevada and Texas and the U.S. Department of Agriculture, Animal and Plant Health Inspection Service has rated *A. donax* "high risk," their highest rating for invasiveness. *A. donax* presents many concerns, but primary among them is its water consumption. Morrow and Umatilla counties currently have over-appropriated surface and groundwater sources and the addition of another crop with high water needs will only exacerbate the problem. Further, growing *A. donax* poses other risks, including the risk of displacing food crops, escaping and become established in wetlands displacing native vegetation, disrupting floodplain function, and increasing fire risk. The long-term potential for escape and reproduction of *A. donax* is simply too great of risk to take in pursuit of biofuels. There are sufficient types and quantities of other biofuel sources that are renewable and which would not introduce invasive, noxious species to our ecosystems.

Please find attached a technical analysis of the potential issues created by biofuel production of *A. donax* in Oregon. If you have any questions, please contact Cheryl Shippentower, Department of Natural Resources, Plant Ecologist at 541-429-7239 or Rico Cruz, Department of Science and Engineering, Biological Systems Program Manager at 541-429-7434.

Sincerely,

Les Minthorn, Chair
Board of Trustees

Enclosure: Technical Analysis of Arundo Donax, November 7, 2012, CTUIR

Cc: Governor Kitzhaber
Oregon Department of Agriculture Director Katy Coba
Umatilla County Commissioners
Morrow County Commissioners
Tim Butler, Oregon Department of Agriculture
Mitchell Nelson, USDA APHIS
Portland General Electric, Wayne Lei

Technical Analysis of Arundo Donax
November 7, 2012
Confederated Tribes of the Umatilla Indian Reservation (CTUIR)

Arundo donax is a highly invasive noxious weed that is extremely fast growing. It is listed among the top 100 worst invasive species on the planet. It has been particularly noted as a threat to riparian areas. Introduction of invasive noxious weeds into an ecosystem presents a wide variety of known and unknown risks.

Invasive Risks

Arundo donax is a plant with many alarming characteristics. Experts note that it is among the fastest growing plants on Earth,[1] and in the top 100 of the world's worst invasive alien species.[2] The United States Department of Agriculture (USDA), Animal and Plant Health Inspection Service (APHIS) states:

> *A. donax* is a highly invasive, bamboo-like weed that was introduced to North America in the early 1500s for its fiber uses. It is among the fastest growing plants in the continental United States, making it a severe threat to riparian areas, where it causes erosion, damages bridges, alters channel morphology, increases costs for chemical and mechanical control along transportation corridors, and impedes law enforcement activities along international borders. Additionally, *A. donax* consumes excessive amounts of water, competing for water resources in arid regions where these resources are critical to the environment, agriculture, and municipal users.[3]

The USDA went on to conclude that *A. donax* poses a "high risk" for invasiveness, their highest risk category.[4] The Oregon Department of Agriculture has issued a revised risk assessment and concluded that *A. donax* meets the standards to be classified as a class A noxious weed.[5]

The original discussions of *A. donax* resulted from of a proposal by Portland General Electric (PGE) to grow it as a replacement fuel source for the PGE Coal plant in Morrow County, Oregon. PGE has since received permission from the county to grow up to 300 acres of *A. donax*. Currently, three Morrow County producers are growing 90 acres of *A. donax*. *A. donax* is an adaptive and resilient plant, characteristics that make attractive as a biofuel, but which also make it a noxious weed. Adaptability to many conditions and soil types means that there are a many environments in which *A.*

---

[1] Noxious wildland weeds of California: Arundo Donax. Dudley, T. Available online at: http://ceres.ca.gov/tadn/ecology_impacts/arundo_ww.html

[2] According to the website: "The Global Invasive Species Database is managed by the Invasive Species Specialist Group (ISSG) of the IUCN Species Survival Commission. It was developed as part of the global initiative on invasive species led by the Global Invasive Species Programme (GISP) and is supported through partnerships with the National Biological Information Infrastructure, Manaaki Whenua-Landcare Research and the University of Auckland." http://www.issg.org/database/species/search.asp?st=100ss

[3] USDA APHIS, Availability of an Environmental Assessment for a Biological Control Agent for Arundo donax, 75 Fed. Reg. 69396, available at http://www.gpo.gov/fdsys/pkg/FR-2010-11-12/pdf/2010-28471.pdf. See also Environmental Assessment, 2010, Field Release of the Arundo Scale, Rhizaspidiotus donacis (Hemiptera: Diaspididae), http://www.regulations.gov/#!documentDetail;D=APHIS-2010-0108-0015

[4] E-mail from Philip Hamm to Cheryl Shippentower, dated June 30, 2012 conveying the June 14, 2012 USDA APHIS "Weed Risk Assessment for Arund donax L. (Poaceae) -- Giant reed."

[5] Oregon Department of Agriculture Plant Risk Assessment for Giant Reed *Arundo donax L.* February 2011, http://www.oregon.gov/oisc/docs/pdf/arundo_ra2011.pdf

donax can thrive that have not been studied, particularly in Oregon. PGE has stated on numerous occasions that they are growing *A. donax* in the fly ash in front of their Boardman coal plant.[6] If *A. donax* can grow in fly ash, it can grow anywhere. Without diseases, pests or other natural controls beyond cold weather and lack of water to keep it in check,[7] *A. donax* is as alarming as a noxious weed as it is promising as a biofuel.

As much as is known about *A. donax*, far more is unknown about how it will behave in Oregon. There simply is not enough independent research to demonstrate that it can be domesticated or controlled here. Much more focused research must be conducted which examines potential releases of *A. donax*. These studies should be undertaken conservatively, limiting the number of plants introduced into the environment. Right now, the economics and politics of continued operation of the PGE Boardman coal plant is driving the time available to develop sufficient scientific research to justify growing *A. donax* in industrial production quantities. Research should not be constrained in this way. We have two years of growth data on *A. donax* in Morrow County. Many more years of data and specifically designed studies at control of *A. donax* are necessary to avoid an escape.

A. donax reproduces by rhizomes and stem nodes. While rhizomes do not migrate far on their own, rhizomes are easily moved by flood waters, high winds, as well as human and animal transport. Further, the individual cane nodes can be productive. The February 2011 Oregon Department of Agriculture (ODA) Plant Risk Assessment for Arundo Donax relies upon Ceotto, di Candillo 2010 for the assertion that "[f]irst year stems do not develop nodal tissues capable of rooting." It should be noted that the Candillo report concluded that first year stems are "poorly suited for propagation" and the "risk for diffusion of detached lateral branches is negligible." Candillo did not conclude that first year stems were incapable of rooting, only that they were poorly suited for propagation. This is an important distinction. Many studies have concluded that any segment of stem or rhizome can sprout if it possesses an axillary bud. The draft Control Area regulations recognize the threats of nodal propagation, but are not specific enough and should state that all grown *A. donax* must be harvested and crushed and that none shall be allowed to grow a second season.

Water Needs

In the analysis of PGE's proposal to grow *A. donax*, the most significant problem identified is water. *A. donax* requires essentially the same amount of water as alfalfa, approximately 3 acre feet of water a year. There are approximately 240,000 acres of irrigated lands within the transportation window defined by PGE around the Boardman coal plant. To date, PGE has estimated that they need between 40,000 and 100,000 acres of *A. donax* under cultivation to supply the coal plant. This would either require the displacement of a number of food crops in the basin or necessitate the withdrawal of new Columbia River water to support the three acre-feet of water *A. donax* requires. Replacement of food crops with energy crops is poor public policy, particularly given the fact that PGE, as a regulated public entity, can essentially outbid any crop because their costs are passed on to the rate-payers. This competitive advantage would assure PGE still made a profit no matter what they had to pay to grow *A. donax*.

---

[6] It is worth noting that the *A. donax* growing in front of the Boardman coal plant is less than ¼ mile from their cooling pond, which violates the December 22, 2010 agreement with Morrow County.

[7] Some studies suggest that even lack of water isn't a significant barrier to viability of *A. donax* because once it's established, it is drought tolerant.

Further, growing *A. donax* using new water rights out of the Columbia River, as has been suggested,[8] would jeopardize the existing balance between Columbia River flows for fish and wildlife and irrigation water withdrawals, which the CTUIR and other basin stakeholders have been working to achieve for over two decades. This additional use, in turn, would drive up demand for water in the Umatilla Basin, which is already over appropriated and would jeopardize water resources the CTUIR has rights to under the Treaty of 1855. The CTUIR is currently in the process of a water rights settlement regarding Tribal water rights.

Finally, growing *A. donax* with additional Columbia River water would create the absurd result whereby water that would otherwise generate electricity through three public Bonneville Power Administration dams on the Columbia would be pumped out of the river, at a significant energy cost, to grow *A. donax*, which must be planted, irrigated, harvested, processed, transported and torrefied (incurring multiple additional energy inputs) only then to be burned to produce electricity for a private company.

Potential Agronomic Research

If there is to be research on *A. donax*, such research should be conducted on as limited a scale as is possible to meet research needs while exercising the utmost care to prevent escape and establishment. PGE has proposed planting 300 acres of *A. donax* for the test burn in 2014, which will result in the growing of over 1.7 million *A. donax* plants in Morrow County.[9] This is not a limited, or careful, research project. A growing operation of this magnitude is also unnecessary to determine if it is a viable biofuel to use at the Boardman plant since sufficient quantities grow in California and Texas to meet the testing needs at the Boardman plant. There is no compelling need to produce commercial quantities of *A. donax* in Umatilla and Morrow counties to test fire the Boardman plant. Any test plot size should be less than 5 acres and should in no circumstance be larger than 15 acres. The results of the limited grow must be peer reviewed and all measures must be identified and implemented to minimize risk of escape and to ensure the scientific integrity of the study. To date, only short term studies have been conducted on growing *A. donax* in Oregon. There must be many more studies conducted to assure that it can be controlled. Given the plethora of independent research that shows the invasiveness of *A. donax*, the likelihood of proving its domestication and control seems unlikely.

In particular it is suggested that an *in situ* test be designed and implemented in Morrow County to determine the invasive nature of *A. donax* in waterways within the Columbia Basin. This work could include a limited, highly monitored growth test of the plant near an isolated, but flowing water way system to determine if plant debris transported by wind other mechanisms will result in new colonies of plants in downstream locations. The study should be conducted over several growing seasons for adult plants. Further, all vectors of rhizome/node transport should be carefully evaluated.

---

[8] Giant cane may open Columbia spigot, Sunday, January 29, 2012, http://www.eastoregonian.com/news/local_news/giant-cane-may-open-columbia-spigot/article_94248394-4a43-11e1-b0af-001871e3ce6c.html

[9] Based on "Arundo donax 2007-2008 Field Progress Report for Aegilops Cylindrica" January 28, 2010 by R. G. Stevens, R. Parker, J. Lunden, W. L. Pan, (provided to the CTUIR by PGE) the stand densities results from the Prosser, Washington work were approximately 5800 plants per acre. At 100,000 acres this would be 580,000,000 plants

Oregon has developed control areas for other crops that threaten other farming interests. This proposal is far more significant due to the fact that an escape of *A. donax* threatens entire ecosystems, including indigenous plants, fish, wildlife, and water resources. Eradication of *A. donax* is expensive and difficult due to the hazards to ecosystems posed by the chemicals used for eradication. Careful thought and extensive study must be put into this effort rather than ad hoc conditions on a proposal from a single entity. Before permitting the growing of production quantities of *A. donax*, all other biofuel sources should be examined. Specifically, those biofuel sources that are known not to be invasive, noxious weeds should be studied. As of the last proposal by PGE, there are 17 other biomass types they are exploring that do not share the noxious/invasive characteristics of *A. donax*, including:

- Wheat straw
- Corn stover
- Annual rye straw
- Sorghum
- Poplar coppice
- Red fir
- White fir pellets
- Poplar shavings
- Hog fuel
- Digester biosolids
- Mint slugs

Draft Rules

The proposed rules take some important steps towards protection against the escape of *A. donax*. However, at some point the risk of escape becomes too great. It is likely that *A. donax* is controllable in the short term but the longer it is grown, the more likely an escape will occur. The risk of escape is amplified with proposed acreage required to meet PGE coal plant needs. Potential modes of escape can occur by the movement of farming equipment between fields and/or the transportation of materials to PGE plant, so covering shipments and cleaning equipment will be absolutely critical. As with many plants imported for industrial purposes, once they escape and become feral, it is often too late to stop the infestation and it becomes only a matter of slowing the spread and eradication becomes impossible. Many arguments have been proposed that escapes of *A. donax* will be easy to address because it grows so large it will be easy to spot. At the Oregon State University (OSU) Experimental Station in Hermiston, attempts to grow *A. donax* have met with limited success, but it is significant to note that at a time when the PGE plots were over 6 feet tall, the OSU plots were significantly shorter. In marginal soils with limited water, it is likely *A. donax* could go undetected for many years beyond the monitoring window. Figure 1 has two stands of *A. donax*, the PGE stand and the OSU stand. These pictures were taken on the same day of two different *A. donax* stands.

Figure 1, PGE *A. donax* stand vs. OSU Experimental Station stand.

As noted above, *A. donax* should not be grown for production quantities of biofuels. Growing *A. donax* for research should be subject to the following conditions, in addition to those restrictions proposed by ODA on agronomic research plantings of *A. donax*:

1) The contractor (or grower) shall write and commence an extensive monitoring and public outreach program to detect and eradicate any escape or infestation of *A. donax*.

2) The contractor (or grower) will conduct a survey of areas down-stream and adjacent to proposed growing areas in order to have a baseline of the presence or absence of *A. donax* prior to planting.

2) The contractor (or grower) shall fund local weed control departments for *A. donax* detection and eradication efforts upon discovery. This should be a robust program because once *A. donax* is on water, it can travel quickly and great distances.

3) The contractor (or grower) shall provide a certified annual assurance report detailing monitoring, detection, and eradication efforts by the contractor (or grower) and local weed control department staff.

4) The duration of the monitoring program post-cultivation of *A. donax* should be 10 years, (rather than 5), with the stipulation that if a *A. donax* escape is discovered by anyone at any time during the 10 years within 20 miles of the test grow, the 10 year period begins again. The annual assurance reports completed each year should contain this information.

5) Local governments, including Tribes, shall be notified within 10 days of discovery of escape or infestation of *A. donax*. Notification shall include locations and actions taken to eradicate *A. donax*.

6) There needs to be further specificity in the draft rules that *A. donax* cannot be grown within ¼ mile of water bodies. The current draft only prohibits growing in a flood zone or "near" water bodies. The definition of "near" is presumably to be identified on a case by case basis.

7) There is nothing in the rule regarding where *A. donax* can be stored. It should not be stored within ¼ mile of any water body due to the fact that nodal tissue can propagate.

8) Tribal consultation should be incorporated into section 5, permit requirements.

9) In section 6(a), the bond should remain in place for 10 years after permitted production ceases. Two years is entirely too short a period to allow for detection of a plant that can travel by many unanticipated modes.

10) Both the contractor and grower should be jointly and severally liable for all eradication costs regardless of bond amount. In the event the grower goes bankrupt, the state should not be on the hook for eradication efforts. Further, if there is a sufficiently large release or the time for eradication is extensive, $1 million may be inadequate; therefore there should be no upper-limit to liability for eradication.

11) In section 5(h), $2 per acre monitoring seems wholly inadequate to cover ODA's costs to monitor permit compliance. How much staff time does ODA anticipate each permit monitoring will require? This funding would only approach adequate if *A. donax* were grown on thousands of acres which, as noted, is premature without the science to demonstrate controllability.

12) In section 6(a), the bond of $100 an acre for detection/eradication is patently inadequate given the current costs borne by California of $25,000 an acre for eradication.

13) In section 5(g), a standard should be established for moisture content rhizomes dried in the field. Both rhizomes and stems can withstand a certain amount of drying and still sprout. Drying rhizomes to 58.8% moisture loss and stems to 36.5% moisture loss did not affect their ability to sprout (Else 1996, Giessow et al 2012).

14) All *A. donax* stands should be harvested annually so that no second year cane is grown. In the ODA risk assessment and at previous meetings of the Weed Board, ODA relied upon the fact that first year nodes are not productive, an arguable point as discussed above, however because second year nodes are far more productive, preventing second year growth will be important.

15) The permits need an effective enforcement mechanism. If a grower violates the rules or their permit, they can be ordered to remove the plants and/or lose their permit to grow *A. donax*.

16) The requirement that shipments of all forms of *A. donax* be covered is absolutely critical in reducing the risk of an escape. A single rhizome or node can grow into a plant no matter how many precautions are taken. When dealing with a plant with such a well-established history of invasiveness, too many precautions cannot be taken. Simply relying on lack of water and cold winters is not sufficient for a drought tolerant and resilient plant.

17) As noted above, cleaning of equipment and covering harvested material is absolutely critical to minimize this potential vector for spreading *A. donax*.

References:

Arundo donax 2007-2008 Field Progress Report for Aegilops Cylindrica; January 28, 2010 by R. G. Stevens, R. Parker, J. Lunden, W. L. Pan.

Ceotto E., di Candilo M. 2010. Shoot cuttings propagation of giant reed (Arundo donax L.) in water and moist soil: the path forward? Biomass and Bioenergy 34 pp. 1614-1623.

Dudley, T. 1998, Noxious wildland weeds of California: Arundo Donax. Available online at: http://ceres.ca.gov/tadn/ecology_impacts/arundo_ww.html

Else, J. A. 1996. Post-flood establishment of native woody species and an exotic, *Arundo donax*, in a southern California riparian system. M.S. Thesis, San Diego State Univeristy, CA. http://team*Arundo*.org/ecology_impacts/giessow_j_thesis.pdf

Environmental Assessment, 2010, Field Release of the Arundo Scale, Rhizaspidiotus donacis (Hemiptera: Diaspididae), an Insect for Biological Control of Arundo donax (Poaceae) in the Continental United States, http://www.regulations.gov/#!documentDetail;D=APHIS-2010-0108-0015

Giessow et al 2012, Arundo donax (giant reed): Distribution and Impact Report. Prepared by California Invasive Plant Council, submitted to the California Water Resources Control Board.

Oregon Department of Agriculture Plant Risk Assessment for Giant Reed *Arundo donax L.* February 2011, http://www.oregon.gov/oisc/docs/pdf/arundo_ra2011.pdf

USDA APHIS, Availability of an Environmental Assessment for a Biological Control Agent for Arundo donax, 75 Fed. Reg. 69396, available at http://www.gpo.gov/fdsys/pkg/FR-2010-11-12/pdf/2010-28471.pdf .

USDA APHIS, 2012 "Weed Risk Assessment for Arund donax L. (Poaceae) – Giant reed." Unpublished.