RE: SB 929 Oregon Pollinator Protection Act

DATE: March 27, 2017

POSITION: SUPPORT

COMMITTEE: Senate Environment and Natural Resources

FROM: Tom A. Titus, Ph.D., Senior Research Associate/Instructor, Institute of Neuroscience, University of Oregon, Eugene, OR

Honorable Senate Environment and Natural Resources Committee,

I am writing in support of Senate Bill 929 to restrict the use of neonicotinoids in Oregon.

My Ph.D. work focused on amphibian evolutionary genetics. My current research revolves around various aspects fish genetics, including changes in gene expression caused by environmental contaminants such as cancer-causing PCBs. For twenty years I have taught the University of Oregon class "Amphibians and Reptiles of Oregon." I am familiar with broad aspects of fish and amphibian ecology and genetics and the toxic effects of pollutants on fishes.

Neonicotinoids damage the network of food relationships in an ecosystem. Imagine the eaters and the eaten as resembling Mt. Hood, with a broad stable base at the bottom, rising and narrowing to a narrow pinnacle at the top. Insects and crustaceans form the stable base of this ecosystem because they are food for smaller numbers of animals higher up. Thus, the upper levels of this ecological mountain depend on stability at the base.

Neonicotinoids can destabilize the food pyramid. They are applied on land but wash into waterways. They do not decay but rather build up in both soil and water.[i] Because of this accumulation they are poisonous to a wide variety of insects and crustaceans.[ii] Neonicotinoids chew away at the base of the food pyramid by killing animals that are prey for predators such as fish and amphibians. Although the base of the food mountain can be severely damaged without removing it entirely, this destabilization has huge negative impacts on species at higher levels.

In particular, accumulation of toxic neonicotinoids in waterways will reduce food for economically and culturally significant species such as trout and salmon. This reduction in food reduces growth and reproductive output of these important fish. No angler in Oregon wants to catch skinny fish. Every angler in Oregon wants healthy populations of trout and salmon.

The effect of neonicotinoids on the food pyramid also applies to amphibians. Many amphibians use both water and land and therefore suffer a dual insult from these pesticides because their prey animals are reduced in both habitats. A reduction in amphibian populations can directly affect humans because healthy amphibian populations serve as a check against insect pests. For example, frogs consume large numbers of adult mosquitos, which are both annoying and known to carry West Nile and Zika viruses.

The base of our mountain of eaters and eaten also includes native pollinators. Neonicotinoids indiscriminately kill these insects, which are necessary for the production of important Oregon food crops such as apples, cherries, and blueberries. Without these pollinators, Oregonians can

expect a reduction in these economically significant fruit crops. Oregonians are against a decline in their iconic food crops, another impact of the persistence and accumulation of neonicotinoids.
Please support our fish, frogs, and fruit crops. Please vote favorably on SB 929 and for controls on neonicotinoid pesticides.
Sincerely,
Tom A. Titus, Ph.D.
Senior Research Associate
Institute of Neuroscience
University of Oregon

References:	
i	http://journal.frontiersin.org/article/10.3389/fenvs.2016.00071/full
ii	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4284381/