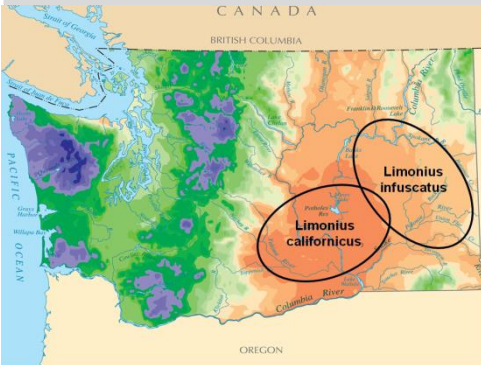
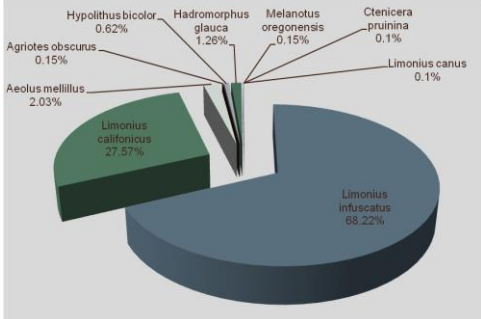




## Climatic Effects on Wireworm Species Distributions

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Pictures shown, from top to bottom, are:

- 1) Wireworm larvae
- 2) Relative abundance of wireworms in Washington
- 3) Distribution of two most common wireworm species

Wireworms, the subterranean larval stages of click beetles (Fig. 1), are pests of cereal crops in North America and globally. Wireworms have proven difficult to manage because in-season sampling is difficult, and damage can be done to crop fields before management strategies are implemented. **Thus, wireworms represent an emerging threat to the continued productivity of cereal crops in the PNW.**

Here, we report results of the first comprehensive survey to look at the wireworm species present in Washington and effects of climatic factors on wireworm distributions. We found a diverse mixture of wireworms, with nine species collected (Fig. 2). Two species, *Limonius infuscatus* and *L. californicus*, represented approximately 96% of wireworms collected (Fig. 2). *L. californicus* was the dominant species in the dryland region of Washington, while *L. infuscatus* was the dominant species in the irrigated region (Fig. 3). Future work will explore how these factors contribute to management of these pests.

Outputs of our project will be disseminated to growers, extension agents, and researchers through the development of an extension bulletin, talks at field days, and research publications. Our results should impact growers interested in wireworm management, as well as researchers interested in the biology and ecology of these species and their interactions with other organisms in cereal systems.

Future challenges include developing a better understanding of the role of climatic factors across landscapes, and micro-climates in farms, on wireworm distributions. In addition, we will explore how farming systems affect wireworms. Therefore, integration with other groups modeling climate change and cropping systems could occur in the future.

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