Distribution Analysis of the African clawed frog (*Xenopus laevis*) in Western Washington

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The African clawed frog (*Xenopus laevis*) is a species originally endemic to sub-Saharan Africa. Used in scientific experiments around the world, the improper release of these frogs has resulted in invasive populations that pose a threat to native biota. Within the last decade the African clawed frog has been introduced to three cities in Washington State; however, little focus has been allocated to mapping the potential spread of this invasive species in Western Washington. A model needed to be created to anticipate the spread of this invasive species in Western Washington in order to inform current and future mitigation efforts. While models of potential African clawed frog spread and distribution have been created, these models have focused on a national or multi-continental scale (Rödder et al., 2017; USFWS 2016) or were conducted outside of Washington State (Fouquet & Measey, 2006; Ginal et al., 2021). Building upon these previous models, this model provides a new high-resolution map that could anticipate invasive species spread in Western Washington. Factors in this model included amount of yearly precipitation, presence of stormwater systems, and average winter temperature amongst other factors. The model was tested for accuracy using AUC and TSS values and was distributed to the public using a public awareness website. In addition, this website included a link to where the public can report African clawed frog sightings, which will be essential to minimizing the spread of the species. Results from the model suggested that regions with moderate to high precipitation, a high density of stormwater systems, and an average winter temperature greater than 0°C had the highest suitability for invasion. This capstone culminates in a discussion on how impacts from the African clawed frog might be mitigated.