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Effects of intensive agriculture/silviculture on immunocompetence and zoonotic disease dynamics in wild deer mice (*Peromyscus maniculatus*).

This project in the Jolles lab, in collaboration with Dr. Matt Betts (Forestry) and graduate student Dr. Rhea Hanselmann, evaluates the effects of toxic compounds commonly used in intensive silviculture/agriculture on zoonotic disease risk. Two central relationships will be explored: (1) the effects of herbicides and pesticides on the normal functioning of the host immune system, and (2) the impacts of these compounds on the prevalence of three important zoonotic pathogens endemic to Oregon: *Leptospira* spp., *Toxoplasma gondii*, and Sin Nombre virus. If agricultural/silvicultural compounds affect host immunocompetence, increases in disease transmission and prevalence may result, potentially exacerbating disease risk to animals and humans within impacted ecosystems.

In the first stage of this study (2011), we will use field surveys in area-typical forestry/agricultural settings to capture the full complexity of land use effects on host immunocompetence and infectious disease prevalence and ensure real-world relevance of our results. There is opportunity for veterinary students to participate in field work (animal trapping, data and sample collection) and lab work (diagnostic testing, immune assays) associated with this project.