
Workshop Rodent-Borne Diseases

Assessing the effect of native forest replacement by exotic plantations on Andes hantavirus infection in wild rodents from central Chile

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Land conversion for forestry/agricultural activities may increase hantavirus transmission in wild rodent hosts, sometimes creating conditions for outbreaks of hantavirus pulmonary syndrome (HPS) in humans. In Chile, a hantavirus strain named Andes virus (ANDV) causes HPS with mortality rate of 40%. One of the most important land-use change in central Chile is the replacement of native forests by exotic Monterey pine (*Pinus radiata*) plantations, which modifies the structure and species composition of rodent assemblages. Therefore, our aim was to study ANDV seroprevalence in wild rodents inhabiting native forest and pine plantations, and assess possible population and community parameters of small mammals that may influence ANDV infection. Rodents were sampled seasonally during 2016 and 2017 in a landscape that contains extensive stands of Monterey pine and interspersed remnants of Maulino forest, a native temperate forest from central Chile. Three types of habitats were sampled: native forest, adult pine plantation and young pine plantation. Blood samples were tested for antibodies against ANDV using a strip immunoblot assay. 1,630 blood samples from seven species were analyzed. Four species had seropositive samples and seropositive individuals were present across all sampling sites. ANDV seroprevalence in *Oligoryzomys longicaudatus* (the principal reservoir of ANDV) was significantly higher in native forest with an overall seroprevalence of 7.5%, compared to the other habitats in which the overall seroprevalence range from 0% to 2.8%. The abundance of the principal reservoir was the main predictor of ANDV infection. Our findings suggest that land conversion to Monterey pine plantations, including adult and young plantations would not increase ANDV risk exposure to humans.