

Patterns of infection, origins and transmission of ranaviruses among the ectothermic vertebrates of Asia

Jayampathi Herath¹, Gajaba Ellepola¹, and Madhava Meegaskumbura¹

¹Guangxi University

June 1, 2021

Abstract

Ranaviral infections, a malady of ectothermic vertebrates, are becoming frequent, severe, and widespread, causing mortality among both native and cultured species, raising odds of species extinctions and economic losses. This turn of events is possibly due to the broad host range of ranaviruses and the transmission of these pathogens through regional and international trade in Asia, where outbreaks have been increasingly reported over the past decade. Here we focus attention on the origins, means of transmission, and patterns of spread of this infection within the region. Infections have been recorded in both cultured and wild populations in at least twelve countries/administrative regions, together with mass die-offs in some regions. Despite the imminent seriousness of the disease in Asia, surveillance efforts are still incipient. Some of the infections transmitted within Asia may transmit across host-taxon barriers, posing a significant risk to native species. Factors such as rising temperatures due to global climate change seem to exacerbate ranaviral activity, as most known outbreaks have been recorded during summer; however, data are still inadequate to verify this for Asia. Import risk analysis, using protocols such as Pandora+, pre-border pathogen screening, and effective biosecurity measures, can be used to mitigate introduction to uninfected areas and curb transmission within Asia. Comprehensive surveillance using molecular diagnostic tools for ranavirus species and variants will help in understanding the prevalence and disease burden in the region. This is an important step towards conserving native biodiversity and safeguarding the aquaculture industry.

Hosted file

Ranavirus.Review.Revision_25May.docx available at <https://authorea.com/users/417361/articles/524498-patterns-of-infection-origins-and-transmission-of-ranaviruses-among-the-ectothermic-vertebrates-of-asia>

Hosted file

Fig1.pdf available at <https://authorea.com/users/417361/articles/524498-patterns-of-infection-origins-and-transmission-of-ranaviruses-among-the-ectothermic-vertebrates-of-asia>

