Abstract   Invasive species eradication campaigns often fail due to stochastic arrival events, unpredictable detectability and incorrect resource allocation. Severe uncertainty in model parameter estimates may skew the eradication policy results. Using info-gap decision theory, this research aims to provide managers with a method to quantify their confidence in realizing successful eradication of particular invasive species within their specified eradication budgets (i.e. allowed eradication cost) in face of information-gaps. The potential introduction of the Asian house gecko Hemidactylus frenatus to Barrow Island, Australia is used as a case study to illustrate the model. Results of this research demonstrate that, more robustness to uncertainty in the model parameters can be earnt by (1) increasing the allowed eradication cost (2) investment in pre-border quarantine and border inspection (i.e. prevention) or (3) investment in post-border detection surveillance. The combination of a post-border spatial dispersal model and info-gap decision theory demonstrates a novel and spatially efficient method for managers to evaluate the robustness of eradication policies for incursion of invasive species with unexpected behaviour. These methods can be used to provide insight into the success of management goals, in particular the eradication of invasive species on islands or in broader mainland areas. These insights will assist in avoiding eradication failure and wasteful budget allocation and labour investment.