1056-91-1274 **Michael R Springborn*** (`mspringborn@ucdavis.edu`), 2104 Wickson Hall, One Shields Blvd, Davis, CA 95616, and **Robert Lieli**. *Closing the gap between risk estimation and decision-making: efficient management of trade-related invasive species risk.* Preliminary report.

In this paper we assess multiple alternatives for designing a screening system to make decisions to allow or exclude novel imported goods. The statistical decision problem is to use available information on previous imports to parameterize a predictive model of the key unknown—a proposal's latent status as damaging or benign. We develop the first side-by-side comparison of two classical approaches—maximum likelihood and Bayesian—against a third, recently developed "maximum utility" (MU) estimation methodology. We demonstrate the implications of the expected payoffs (benefits and potential damages) of a risky import for the risk estimation problem. The MU approach utilizes the insight that a global fit of the statistical model is less important than the localized problem of identifying the best switching point from one discrete decision to another, e.g. from rejection to acceptance of a proposed import. We develop an empirical application using Australian data based on the problem of choosing to reject or accept novel plant imports given that the primary unknown is whether or not the proposal will become invasive. We demonstrate when the MU method is likely to offer significant incremental gains and estimate this annual value to be $32-$66 million (AU$). (Received September 21, 2009)

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