

Appendix S1

Gerber and Kendall. Adaptive management of animal populations with significant unknowns and uncertainties: a case study. Ecological Applications.

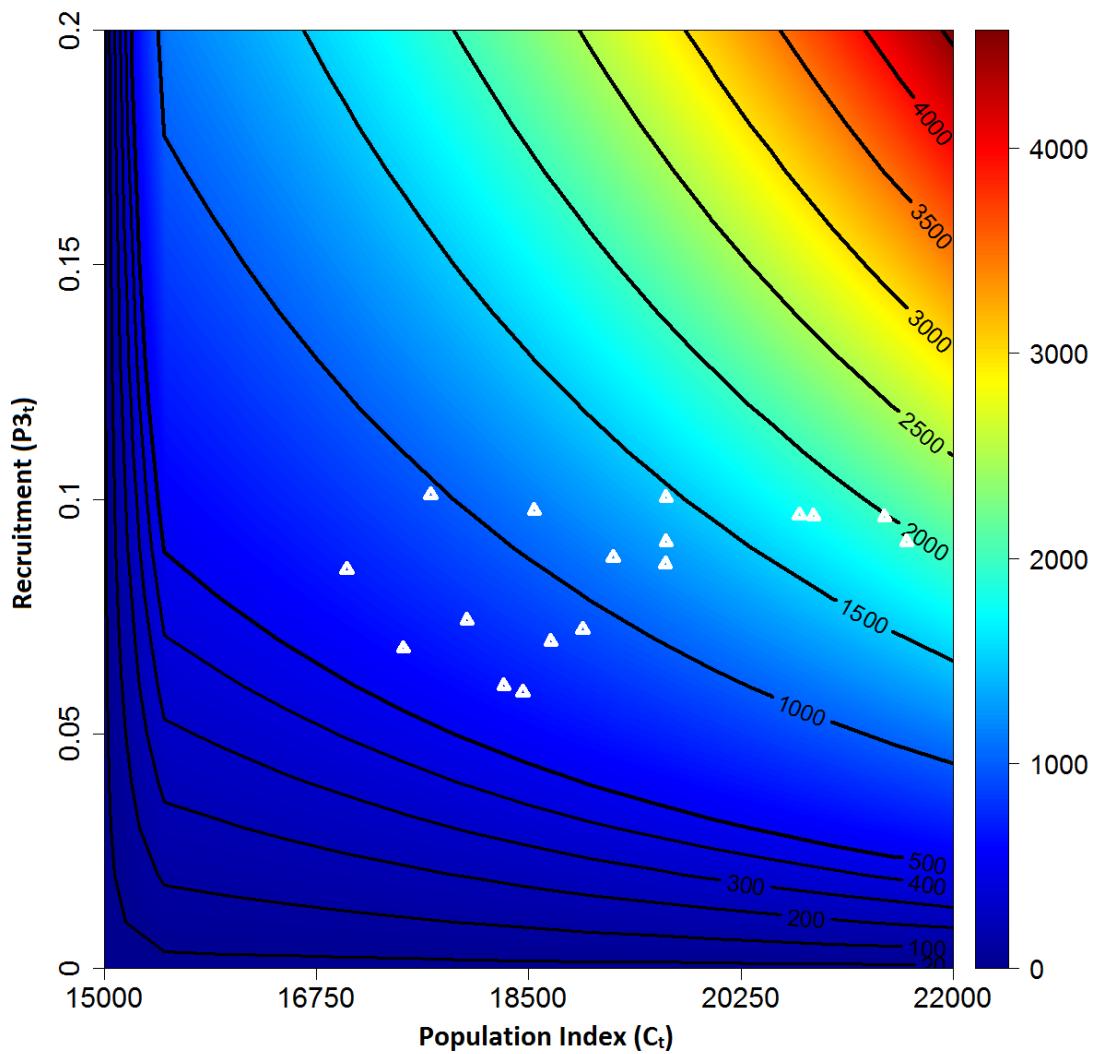


Figure S1: Allocated harvest for the Rocky Mountain Population of sandhill cranes using the current reactive decision framework; realized allocated harvest from 1981-2014 is presented as white triangles.

Figure S2: A three-dimensional representation of the current harvest decision framework for the Rocky Mountain Population of sandhill cranes over a range of realistic values of the population index (C_t , in thousands, x-axis) and juvenile recruitment (Recruitment, P_{3t} , z-axis). The allowable harvest is expressed in the thousands (permits) on the y-axis.

Model Weight Updating

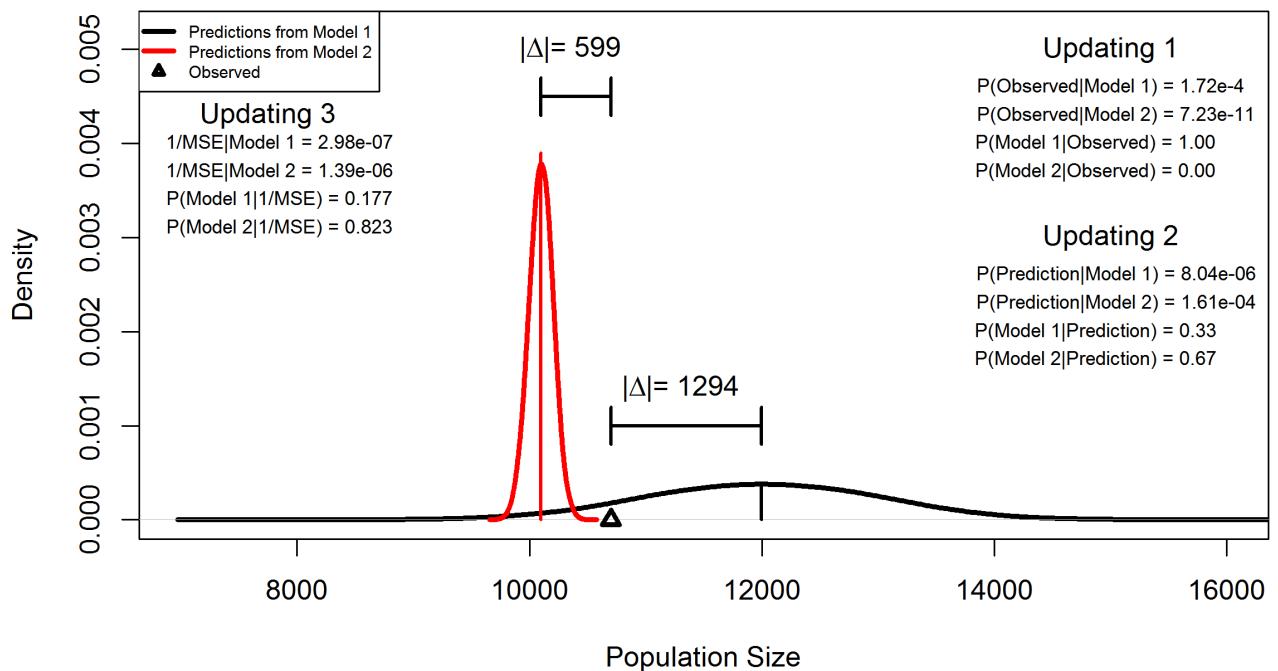


Figure S3: A hypothetical situation where two population models' predicted distribution are very different in terms of precision and accuracy compared to the observed true population state. Updating 1 indicates updating model weights using Bayes theorem and the probability of the new observation, given each model. Updating 2 indicates the use of the Laplace probability density to evaluate the discrepancy between the observed population and the expected prediction from each model, which is then used in Bayes theorem to update the probability of each model. For both Updating 1 and 2, equal prior probabilities for the models are used. Updating 3 uses the inverse of the MSE to calculate annual weights of each model. $|\Delta|$ indicates the absolute value of the difference between the observed value and a model's expected value.