

Wells, K., Feldhaar, H., O'Hara, R. B. 2013. Population fluctuations affect inference in ecological networks of multi-species interactions. – *Oikos* 000: 000–000.

## Appendix A1

Plots of variation in species-level network indices ( $d'$ , Fisher's  $\alpha$ , *Dependence*) derived from populations with and without demographic and stochastic effects.

Figure A1.2a–A1.2.c and A1.2a–A1.2c are supplementary to Fig. 2 and Fig. 3 in the main text where the same relationship is only shown for consumer species C1. We show the variation in network indices here for all species since indices may exhibit different attributes among species due to different inter-species interactions among consumers and carrying capacities (see main text).

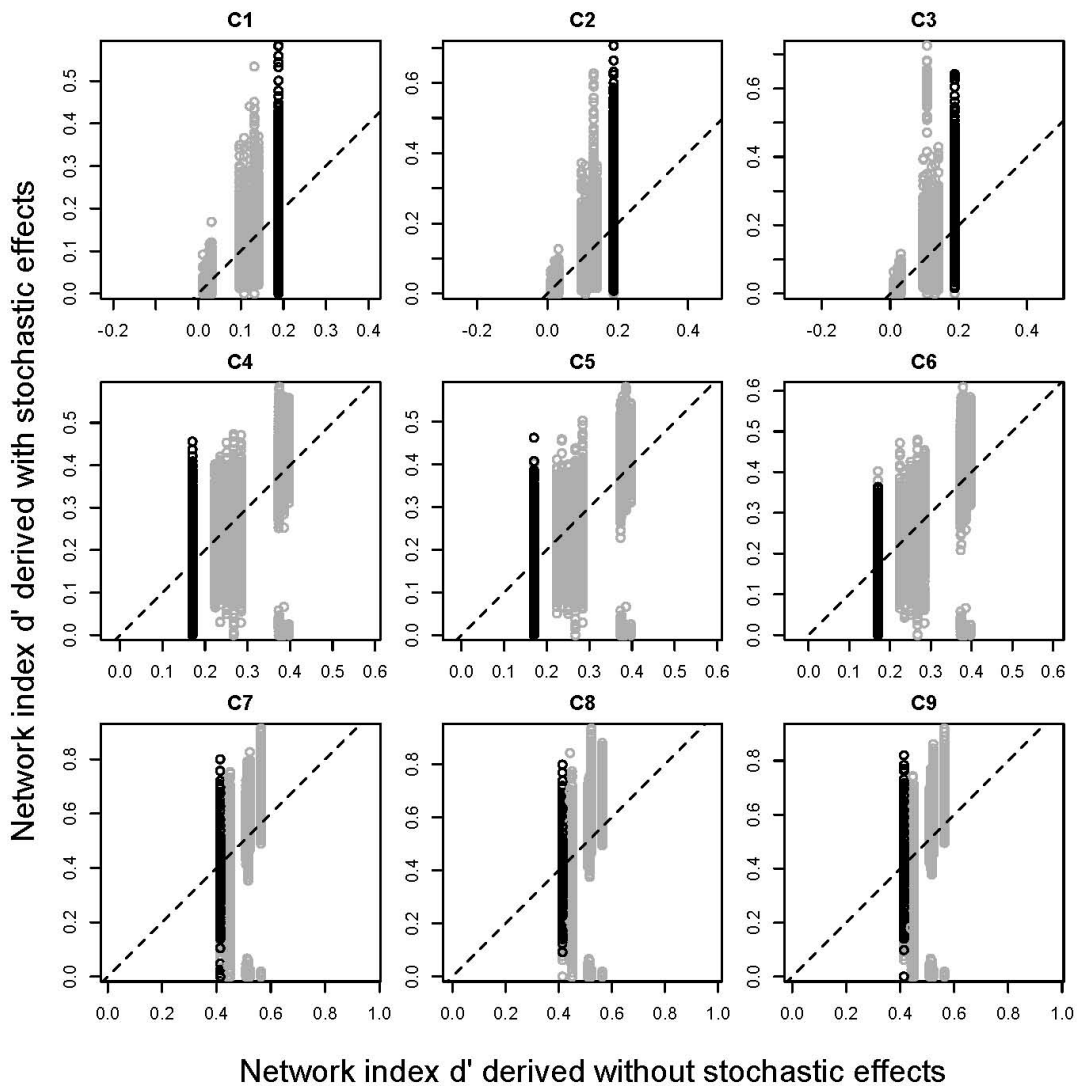


Figure A1.1a Variation in species-level network index  $d'$  derived from populations with and without demographic and stochastic effects. Variation in indices due to different parameters are plotted against indices derived from simulations with the same parameters, but with additional stochastic effects (grey points). Black points indicate networks with no demographic variation (i.e. no interaction effects  $\alpha$  and no differences in carrying capacities  $K$  among consumer species) but stochastic variation in the underlying populations. Index values without stochastic effects comprised means over consecutive time steps for each simulation. Dashed lines indicate a 1:1 relationship.

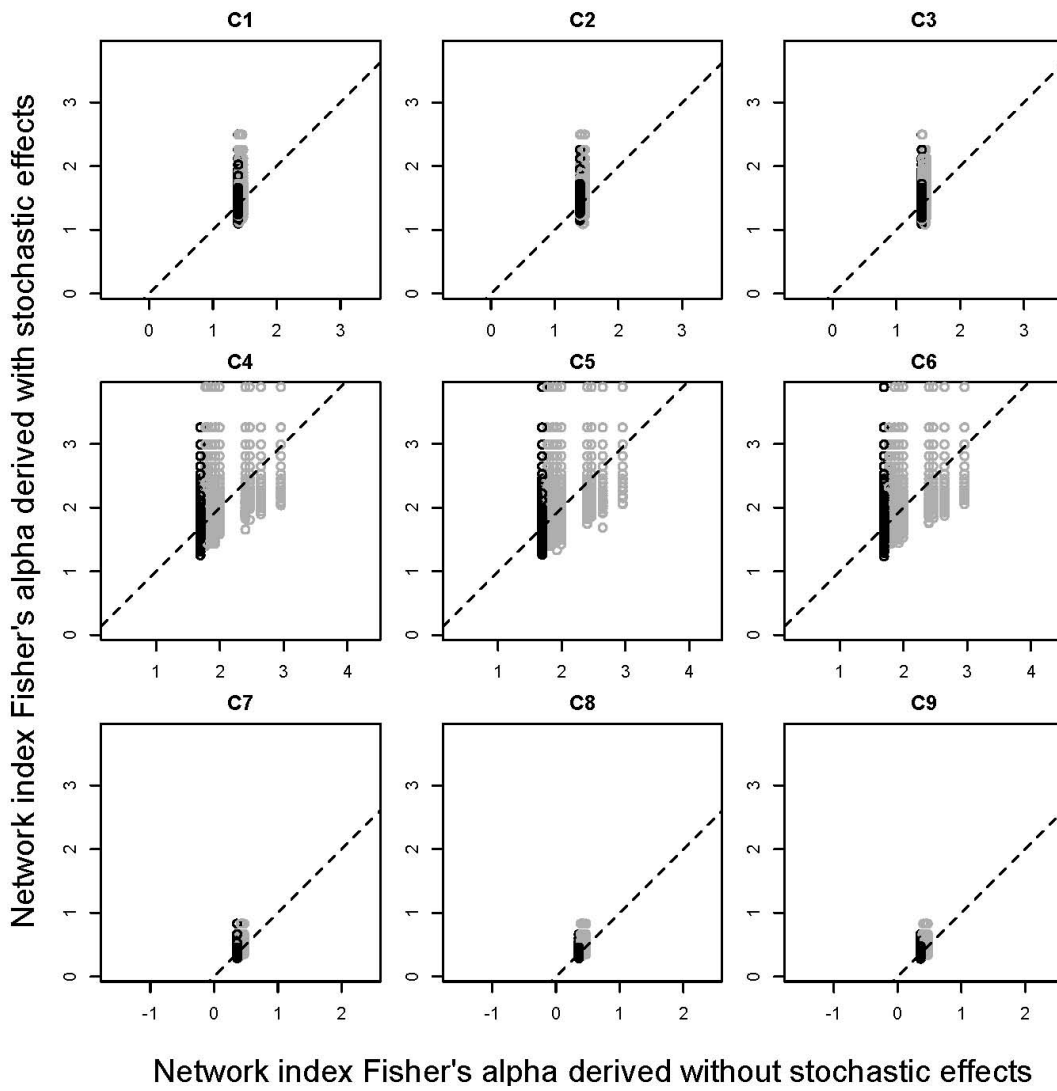


Figure A1.1b Variation in species-level network index *Fisher's alpha* derived from populations with and without demographic and stochastic effects. See figure legend above for details.

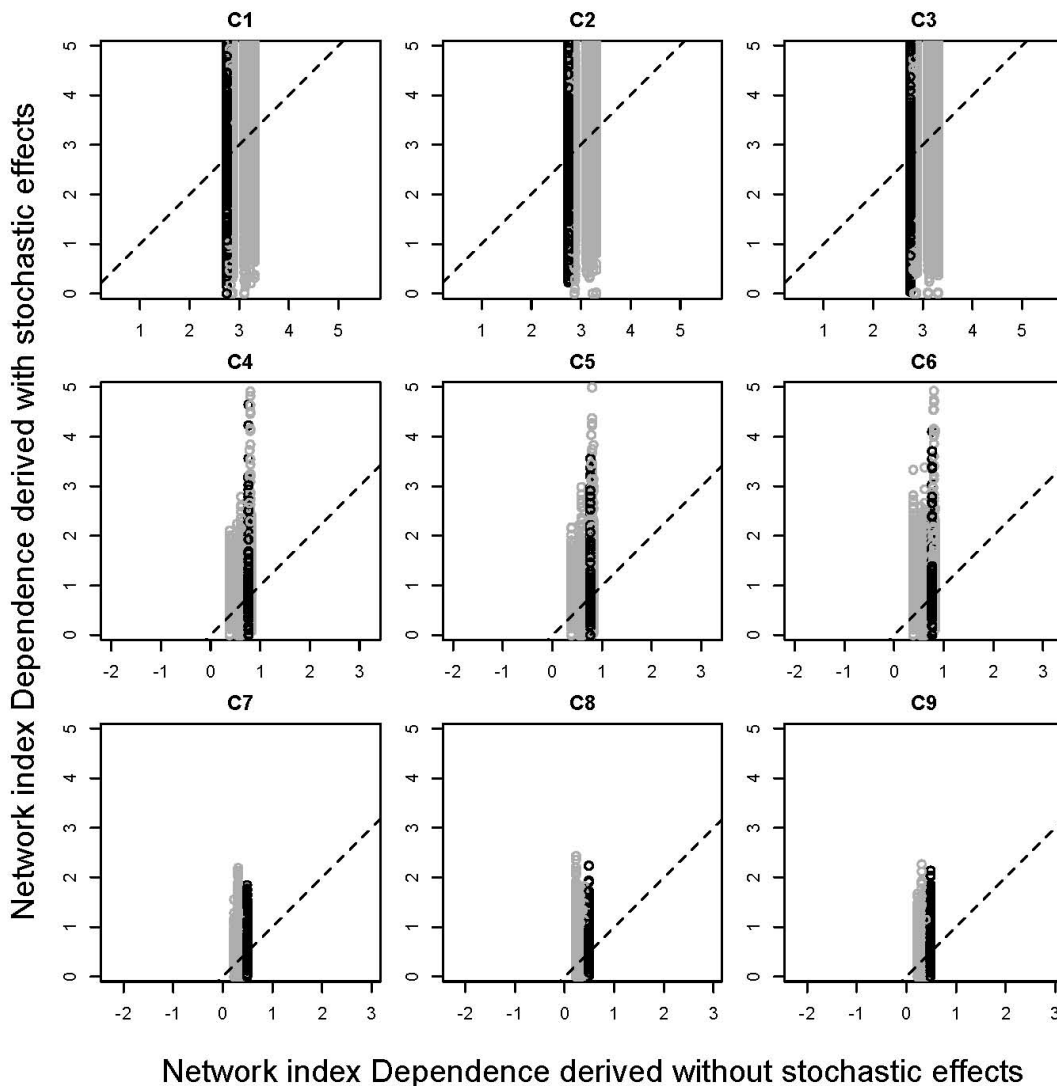


Figure A1.1c Variation in species-level network index *Dependence* derived from populations with and without demographic and stochastic effects. See figure legend above for details.

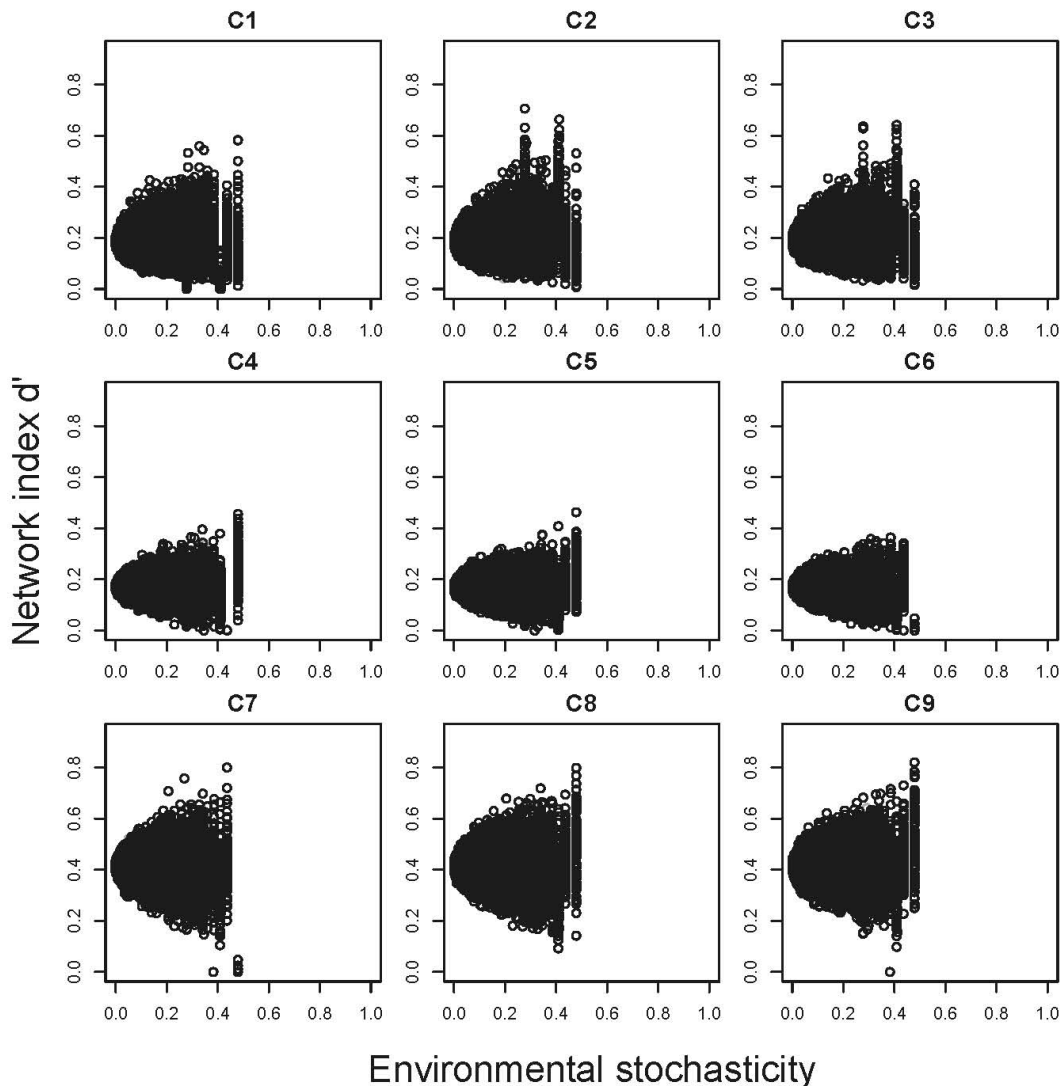


Figure A1.2a. Variation in the species-level network index  $d'$  within simulations for different levels of environmental stochasticity.

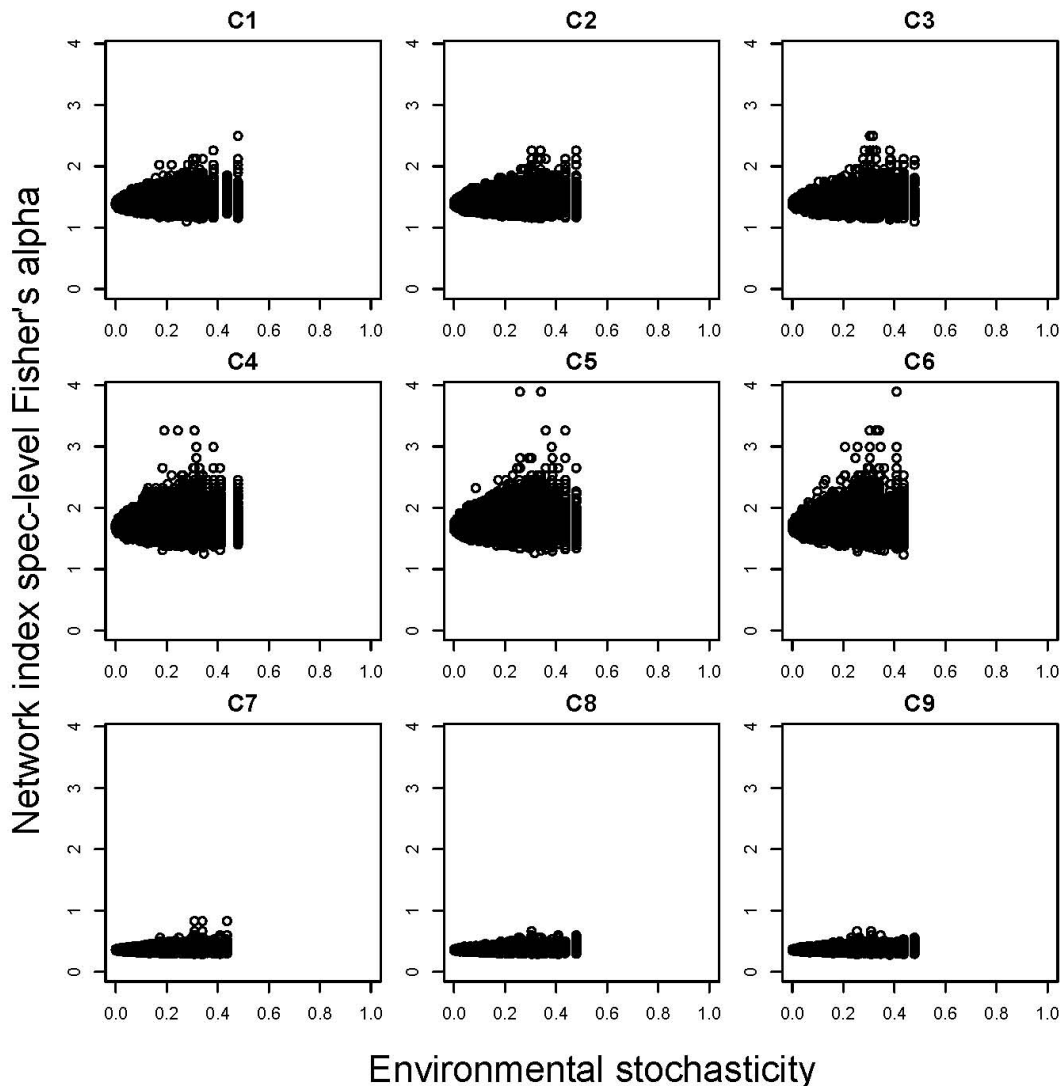


Figure A1.2b. Variation in the species-level network index *Fisher's alpha* within simulations for different levels of environmental stochasticity.

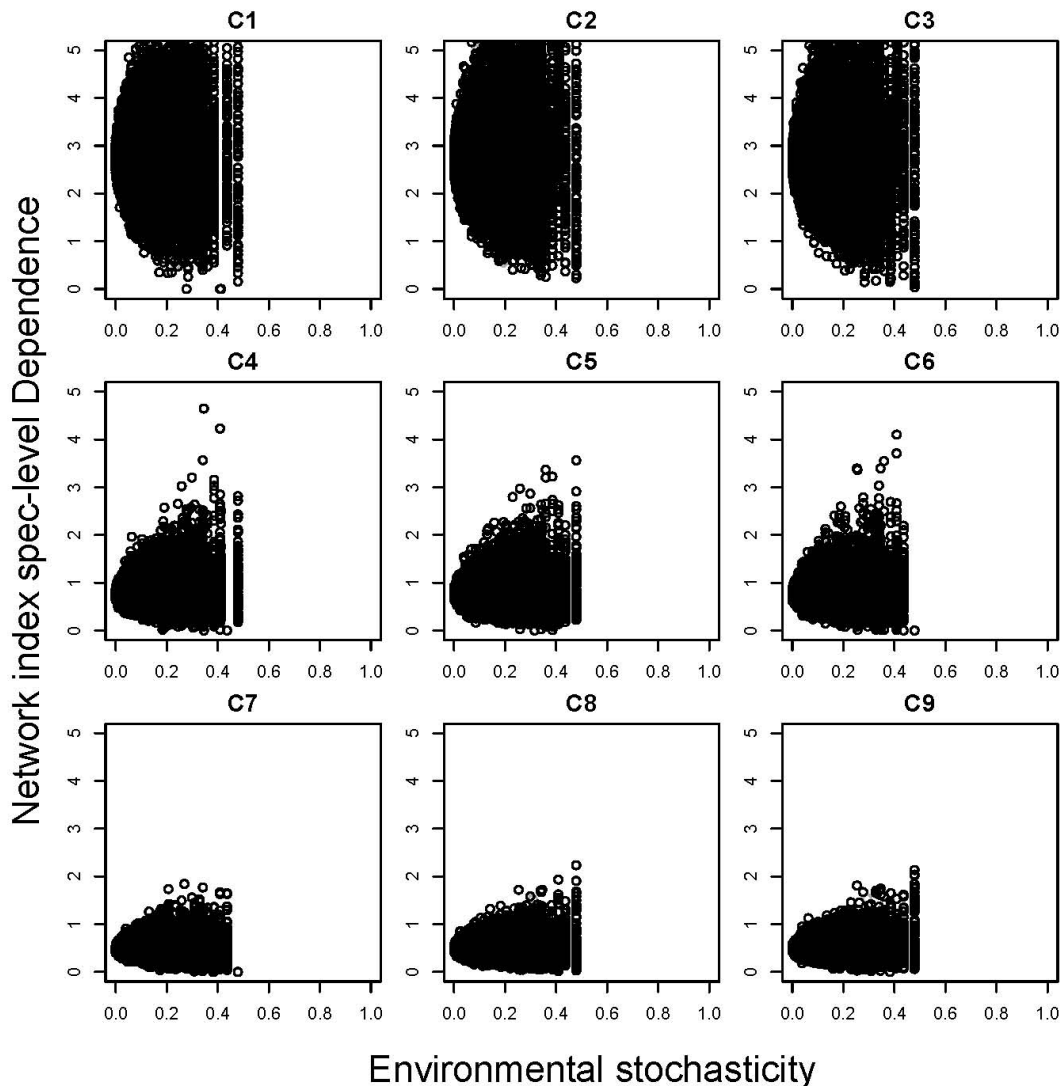


Figure A1.2c. Variation in the species-level network index *Dependence* within simulations for different levels of environmental stochasticity.