

NBR RECRUITMENT CURVE PREDICTIONS METADATA:

A. COLOR –

- 1) Gray = year of study
- 2) Blue = HILL site (UTM 706453 EAST 5249980 NORTH)
- 3) Rose = TRIANGLE site (UTM 713570 EAST 5248100 NORTH)

B. YEAR –

- 1) Study. The study began in 1992 at HILL site and in 1994 at TRIANGLE site and has continued every year. The dominant grasshopper species at both sites was *Melanoplus sanguinipes*, comprising respectively 70% and 50% of individuals at the two sites, and more than 80% of grasshopper biomass.
- 2) Experiment. Defined in RECRUITMENT CURVE EXPERIMENT METADATA and PREDATOR EXCLUSION EXPERIMENT METADATA.

C. WITHIN EACH SITE –

- 1) BIMODAL CURVE.
 - i. Bimodal -- if the two wave function provided a lower AIC value than the one wave function, then the recruitment curve was suspected to be bimodal. However, for bimodality to be attributed to the data the computed two peaks of the two wave function also had to be statistically different in terms of their associated N_t value ($P < 0.10$).
 - ii. Unimodal -- If the one wave function has a lower AIC than the two wave function or the computed two peaks of the two wave function are not different in terms of their associated N_t values ($P > 0.10$), then the recruitment curve was considered unimodal.
 - iii. Unknown (?) -- the recruitment curve cannot be classified as uni- or bi-modal.
- 2) INTERSECTION. The reference line ($N_t = N_{t+1}$) and the recruitment curve intersect only on the “wave” created by PREDATION (1, P: the left bimodal hump), only on the “wave” created by FOOD competition (1, F: the right bimodal hump), or BOTH “waves” are intersected (3).
- 3) TROUGH. N_t value on a bimodal recruitment curve where the left (predator-limited) and right (food-limited) peaks intersect.
- 4) OBSERVED INITIAL N_t . Current year’s hatchling density observed in experimental control areas.
- 5) PREDICTED-LIMIT. Predation (PRED) if OBSERVED INITIAL $N_t \leq$ TROUGH; food (FOOD) if OBSERVED INITIAL $N_t >$ TROUGH.
- 6) OBSERVED-LIMIT. Results of PREDATOR EXCLUSION EXPERIMENT METADATA.
- 7) OBSERVED N_{t+1} . Observed next year’s hatchling density in experimental control areas.
- 8) PREDICTED N_{t+1} . Given the current year’s hatchling density observed in experimental control areas and the recruitment curve (RECRUITMENT CURVE EXPERIMENT METADATA), the next year’s hatchling density in experimental control areas is predicted.
- 9) GRAPH. Regression analysis of the PREDICTED $N_{t=1}$ and OBSERVED N_{t+1} .