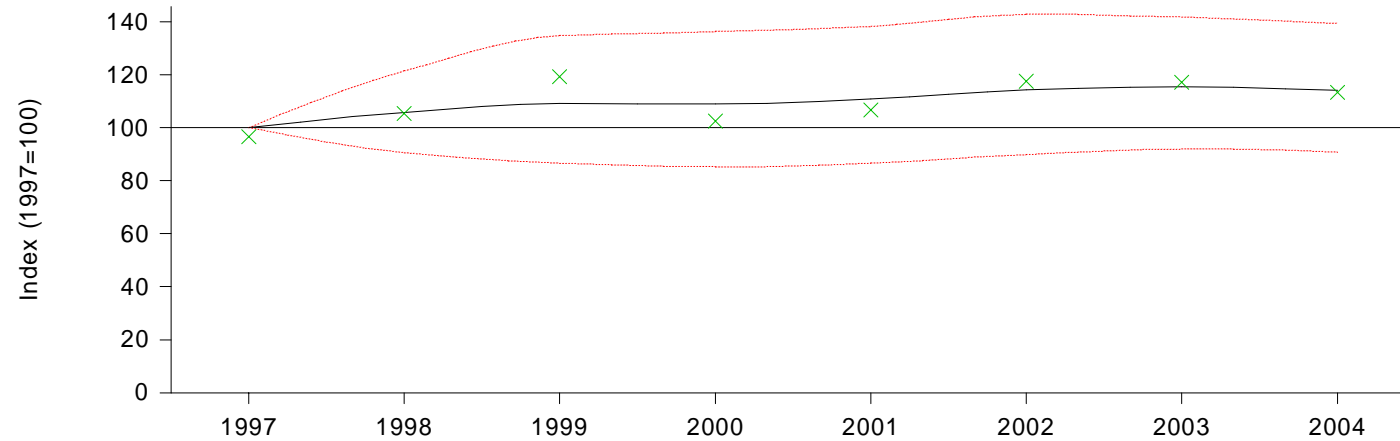


# Combining datasets

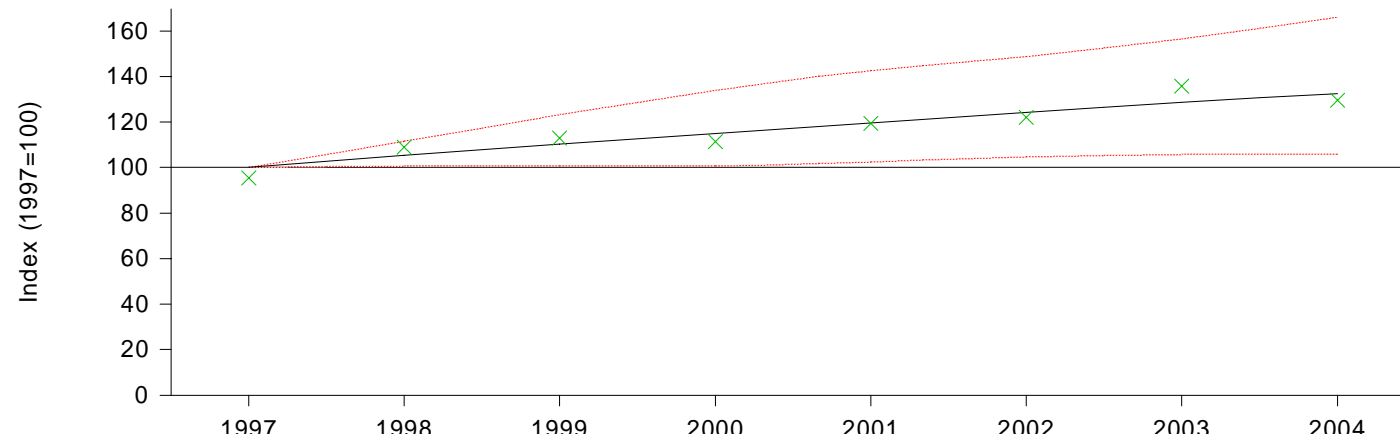
- Where two different datasets estimate the same trend
- e.g. field survey and hibernation survey for Daubenton's bat
- Could fit one big model to both datasets, but not straightforward
- Alternatively use approach based on the fast method of fitting GAM models

# Daubenton's surveys

Waterway survey



Hibernation counts



Red lines are 95% confidence limits

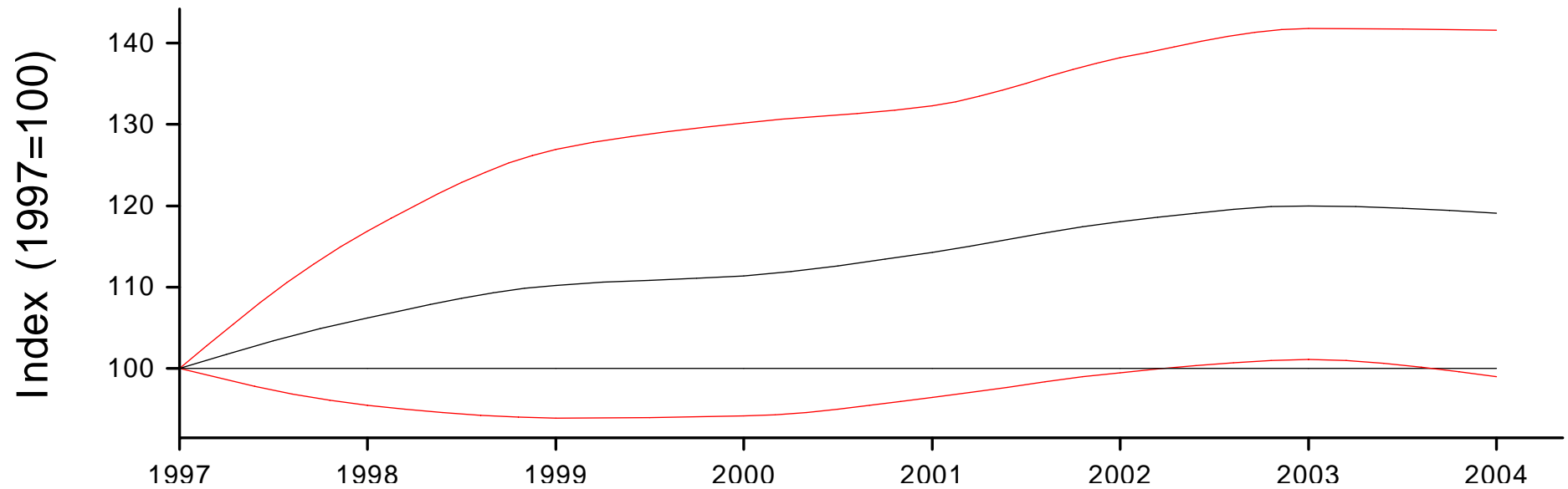
# Fast method for GAMS

- Published method fits GAM in main model (Poisson GLM)
- Fast method uses Poisson GLM to fit a saturated model with estimate for each year
- These annual estimates are then put into a secondary model to fit the GAM
- Only small loss of efficiency, but big gain in speed for large datasets
- Results can differ from the full analysis if sites surveyed differ appreciably between years, due to loss of information on covariances.

# Combining using fast method

- To combine datasets fit fast method to each
- then combine both sets of annual estimates into a single GAM model
- Use bootstrapping to test for interactions and for confidence limits

# Combined model for Daubenton's



Red lines are 95% bootstrap confidence limits