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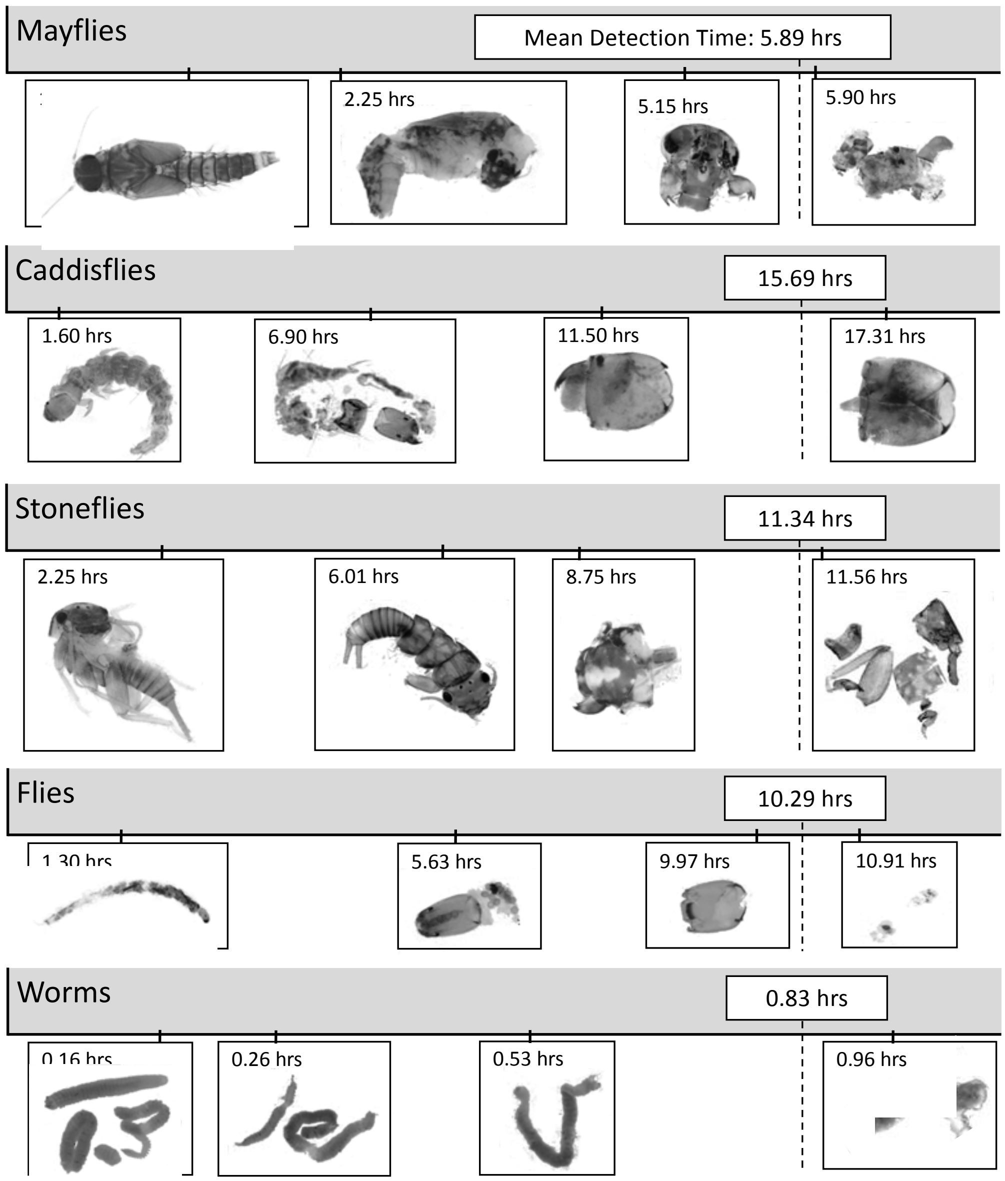
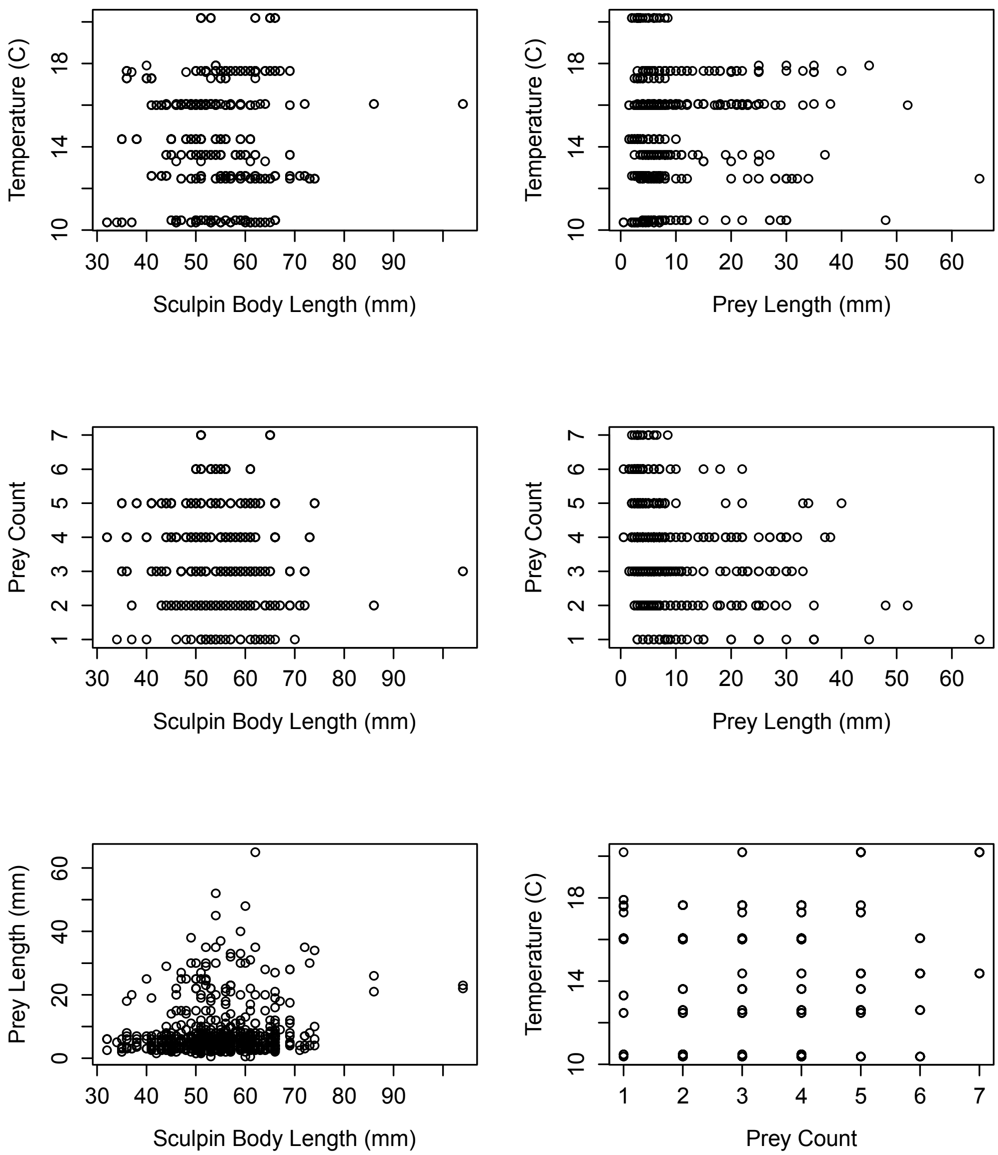
Supplement: Invertebrate Prey Identification Model Selection and Additional Figures

Supplementary Table S.1. Values of Akaike's information criterion corrected for small sample size for each survival model (Weibull, log-logistic, exponential, and lognormal distributions) with covariates for prey size, predator (Reticulate Sculpin) size, and water temperature. The model with all prey collectively (bottom row) included a categorical covariate for prey type and the prey type × prey size interaction.

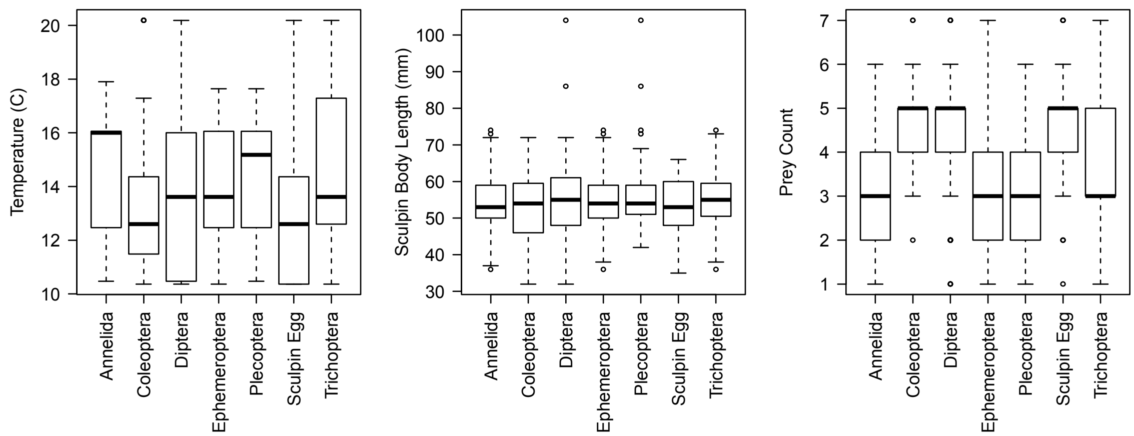
Prey identity	Weibull	Log-logistic	Exponential	Lognormal
Mayflies (Ephemeroptera)	75.99	117.25	95.26	76.64
Caddisflies (Trichoptera)	81.92	80.94	100.23	80.99
Stoneflies (Plecoptera)	67.57	70.56	84.93	69.95
True flies (Diptera)	122.16	123.75	129.84	123.00
Worms (Annelida)	49.13	47.58	47.48	48.23
Beetles (Coleoptera)	55.81	56.77	56.79	56.39
Sculpin eggs	33.43	34.36	46.78	34.16
All prey	423.43	440.65	545.54	441.38



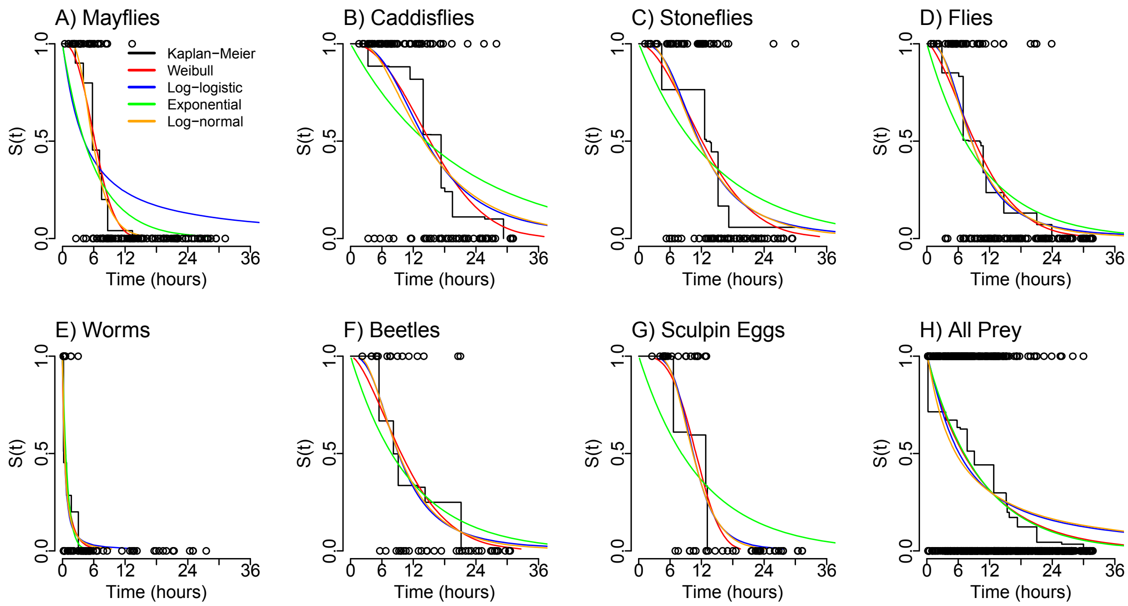
Supplementary Figure S.1. Images of prey items in various states of digestion, including identifiable and unidentifiable prey. The dashed vertical line indicates the mean prey identification time for each prey group. Images to the right of the dashed lines depict prey items that were not identifiable to the order level.



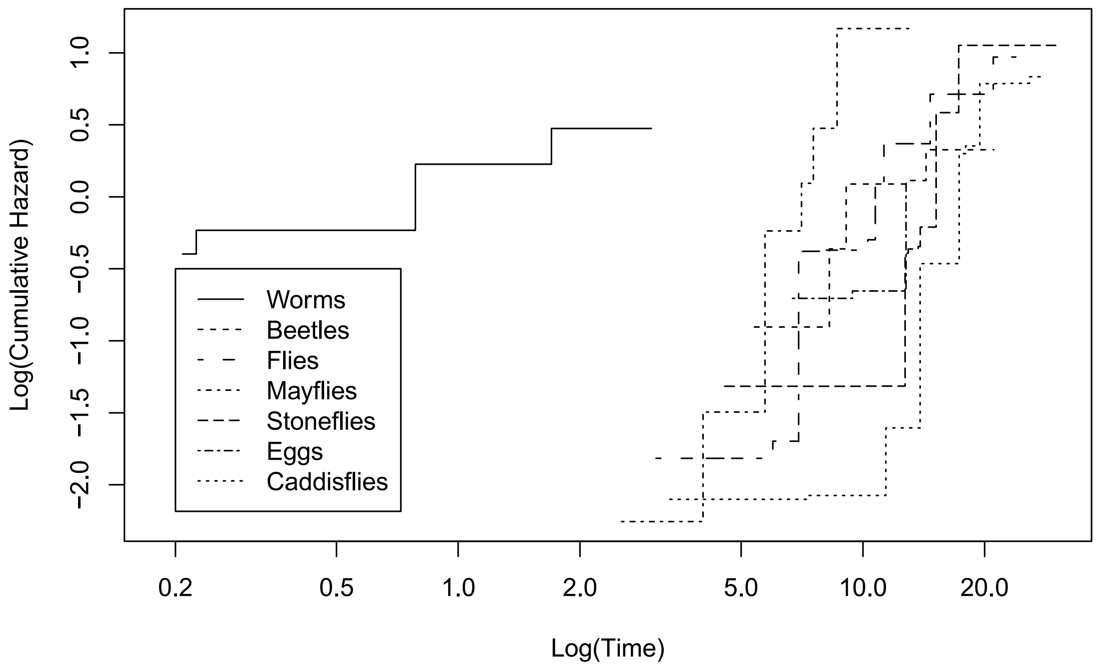
Supplementary Figure S.2. Pairwise correlation plots for four continuous predictor variables: Reticulate Sculpin (i.e., predator) body length (mm), temperature (°C), prey length (mm), and prey count. Pearson's product-moment correlation coefficients are as follows: –0.0027 for temperature versus sculpin body length; 0.12 for temperature versus prey length; –0.014 for temperature versus prey count; 0.16 for sculpin body length versus prey length; –0.075 for sculpin body length versus prey count; and –0.28 for prey length versus prey count.



Supplementary Figure S.3. Box plots showing variation in predictor variables across seven prey types fed to Reticulate Sculpin (Annelida = annelid worms; Coleoptera = beetles; Diptera = true flies; Ephemeroptera = mayflies; Plecoptera = stoneflies; sculpin egg = eggs of Reticulate Sculpin; Trichoptera = caddisflies). The midline denotes the median, the upper and lower ends of the box are the third and first quartiles, the whiskers extend to 1.5 times the interquartile range, and the open circles are outliers.



Supplementary Figure S.4. Comparison of nonparametric Kaplan–Meier survival models with each of the four parametric survival models for **(A)** mayflies (Ephemeroptera), **(B)** caddisflies (Trichoptera), **(C)** stoneflies (Plecoptera), **(D)** true flies (Diptera), **(E)** worms (Annelida), **(F)** beetles (Coleoptera), **(G)** sculpin eggs, and **(H)** all prey collectively. None of the models included covariate information. The *y*-axis indicates the probability ($S[t]$) that a prey item consumed by a Reticulate Sculpin will remain identifiable beyond the corresponding time point.



Supplementary Figure S.5. One feature of the Weibull model is that the log negative-log of survival time (i.e., $\log_e\{-\log_e[S(t)]\}$) is linearly related to $\log_e$(time). We examined this graphically by using survivorship estimates from the nonparametric Kaplan–Meier model. This figure therefore depicts the log negative-log Kaplan–Meir survival estimate plotted against $\log_e$(time) for each prey group separately. The slope of these lines corresponds to the shape parameter in the Weibull survival model. Linear lines indicate a constant shape parameter; parallel lines indicate that each group has a similar shape parameter.