

GAM Assumption Checks

Journal: Ecology

Title: Temperature niche and body-size conditions phenological responses of moths to urbanization in subtropical environments

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In this document, we show DHARMA residual checks of models fit with both negative binomial distributions and Poisson distributions. The negative binomial distribution fit our pooled community data well, while the Poisson distribution performed less well. We also tested examined the residuals of models fit with the negative binomial distribution and the Poisson distribution for our species-specific models. Those results also indicate that the negative binomial distribution fits our data better, although those results are not plotted below.

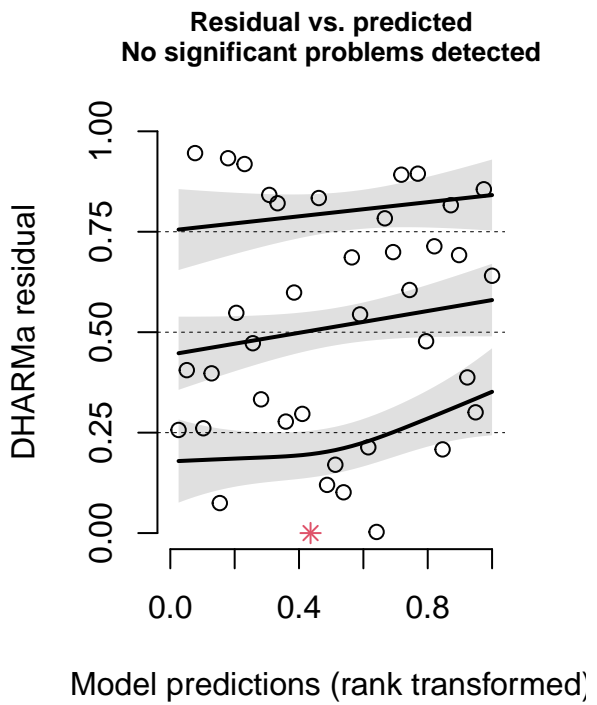
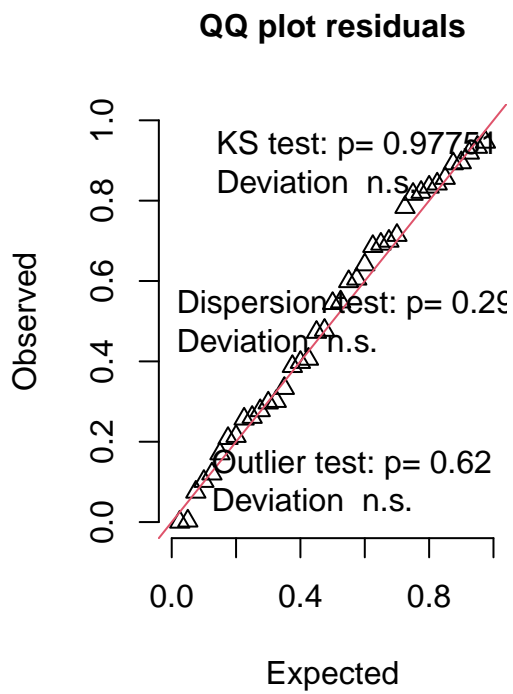
Pooled Macro-moth checks

First negative binomial distributions

We first show the residual checks for models fit using the negative binomial distribution to our pooled macro-moth data.

Site: AUCA

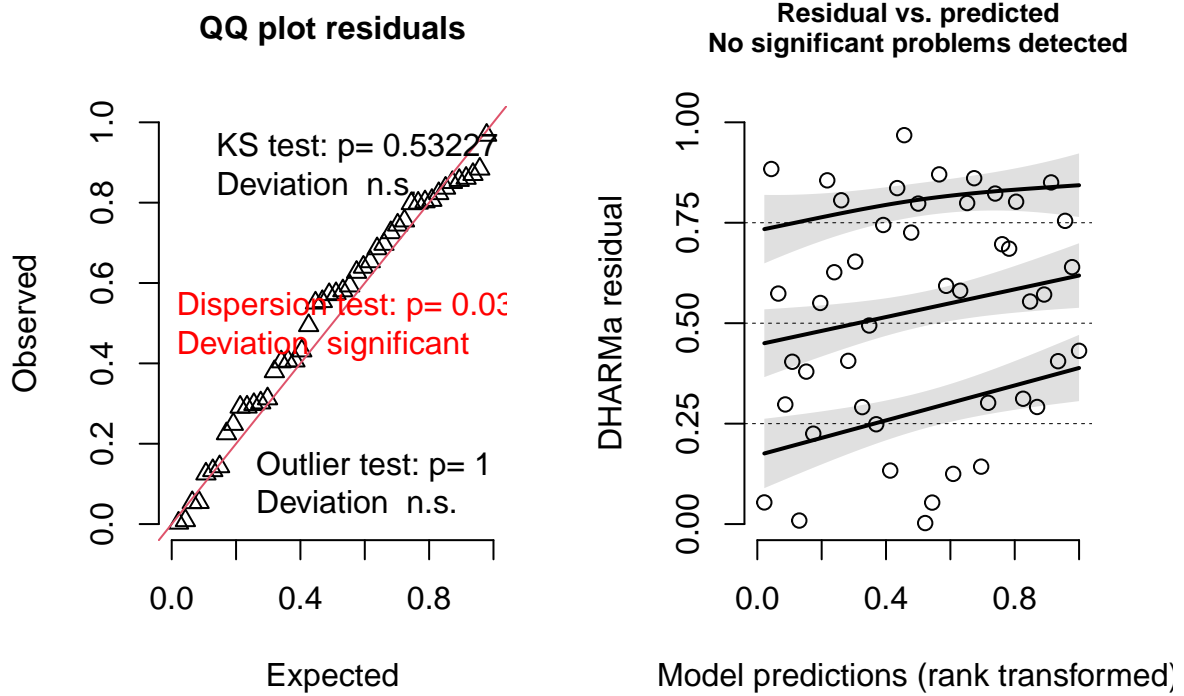
DHARMA residual



NULL

Site: PRCR

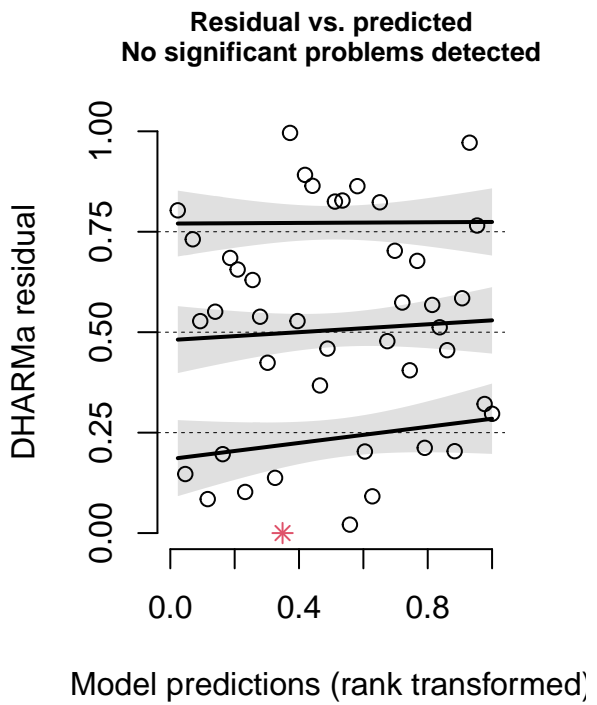
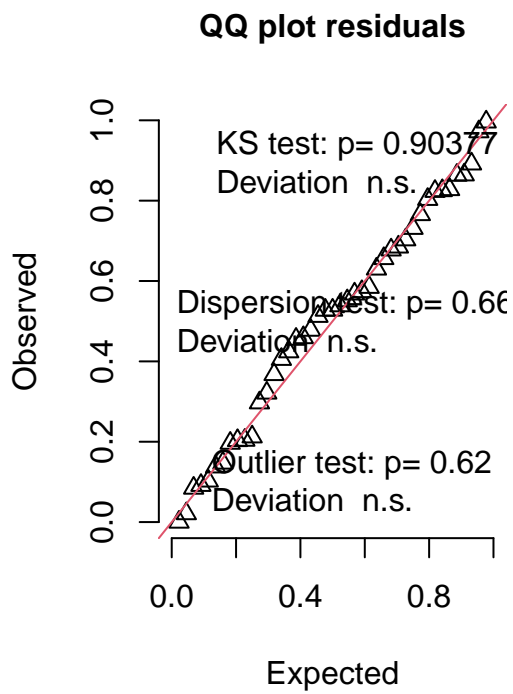
DHARMa residual



NULL

Site: Rist

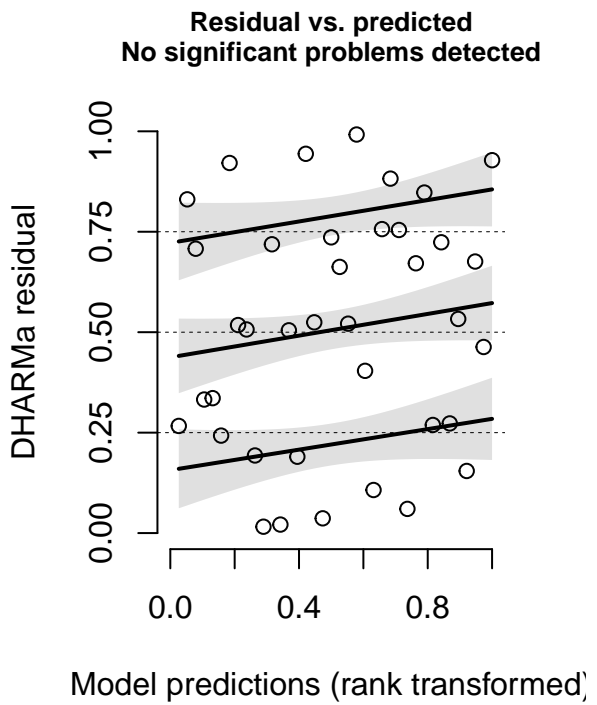
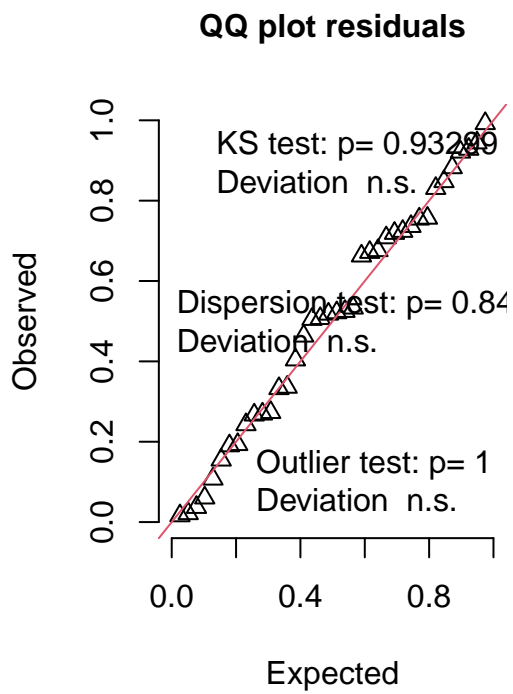
DHARMa residual



NULL

Site: Demi

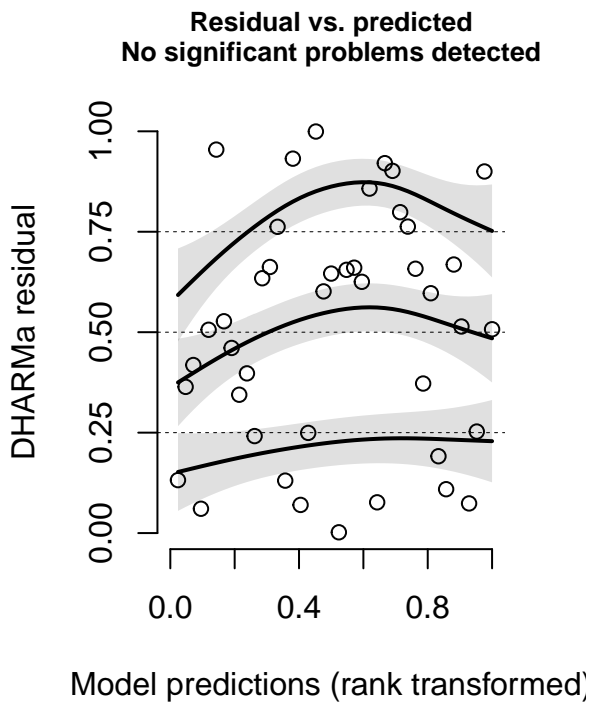
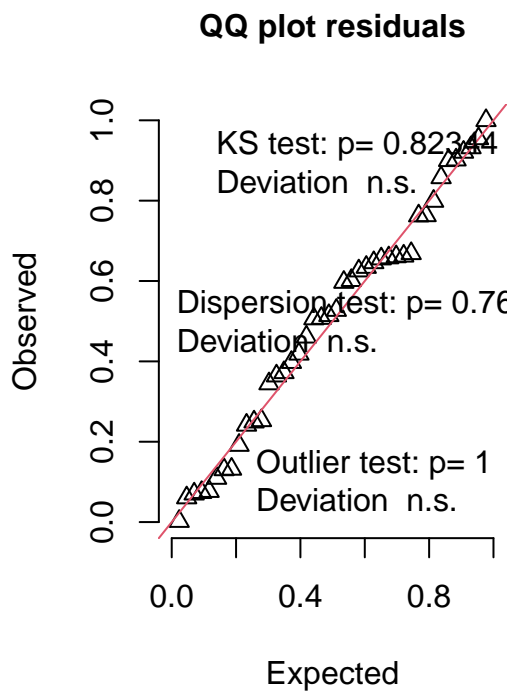
DHARMa residual



NULL

Site: Bowa

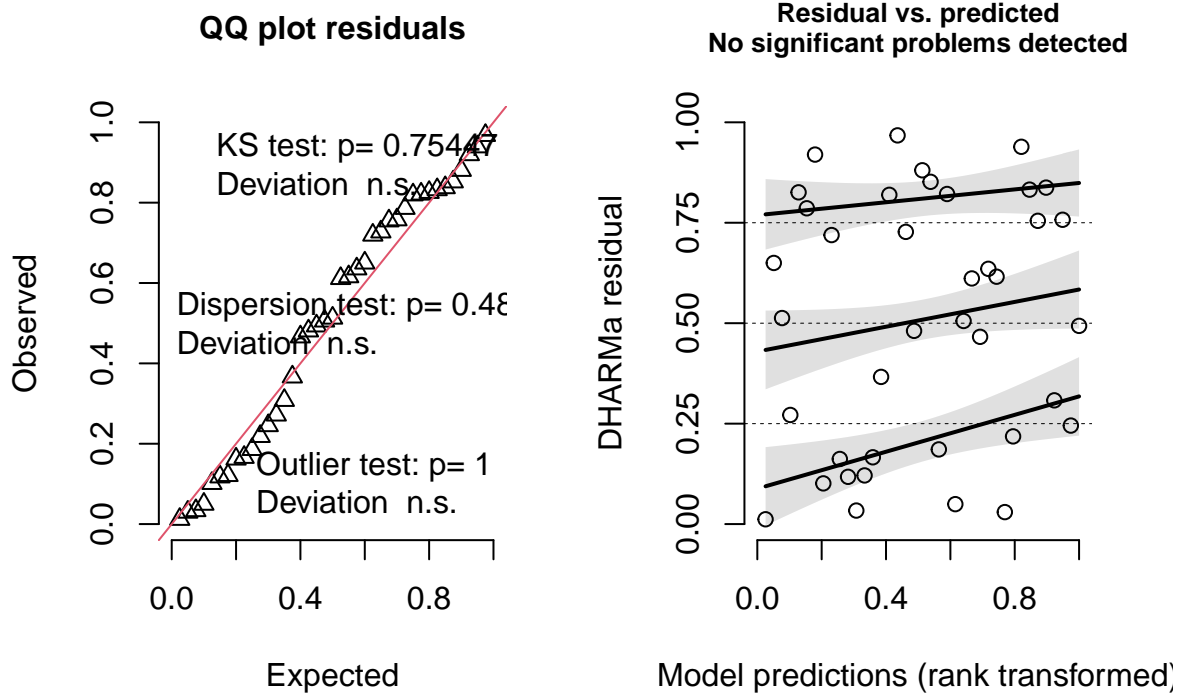
DHARMa residual



NULL

Site: Biva

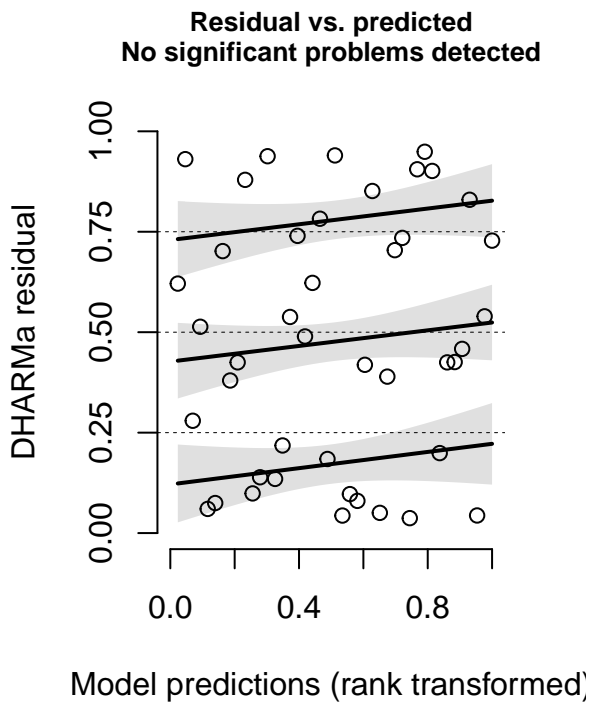
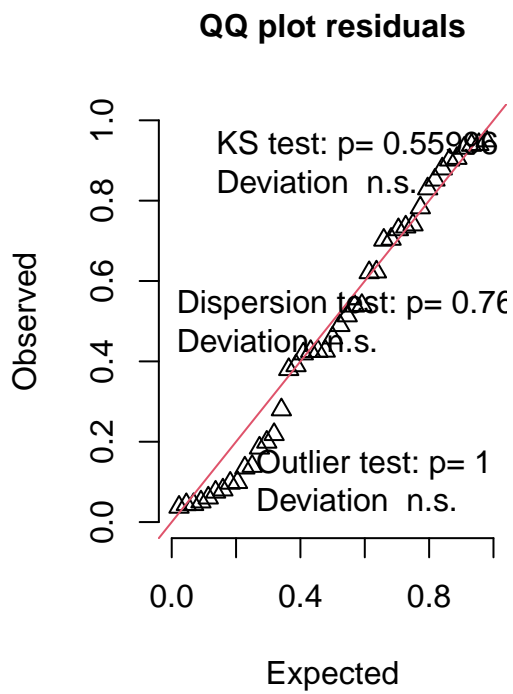
DHARMA residual



NULL

Site: Baca

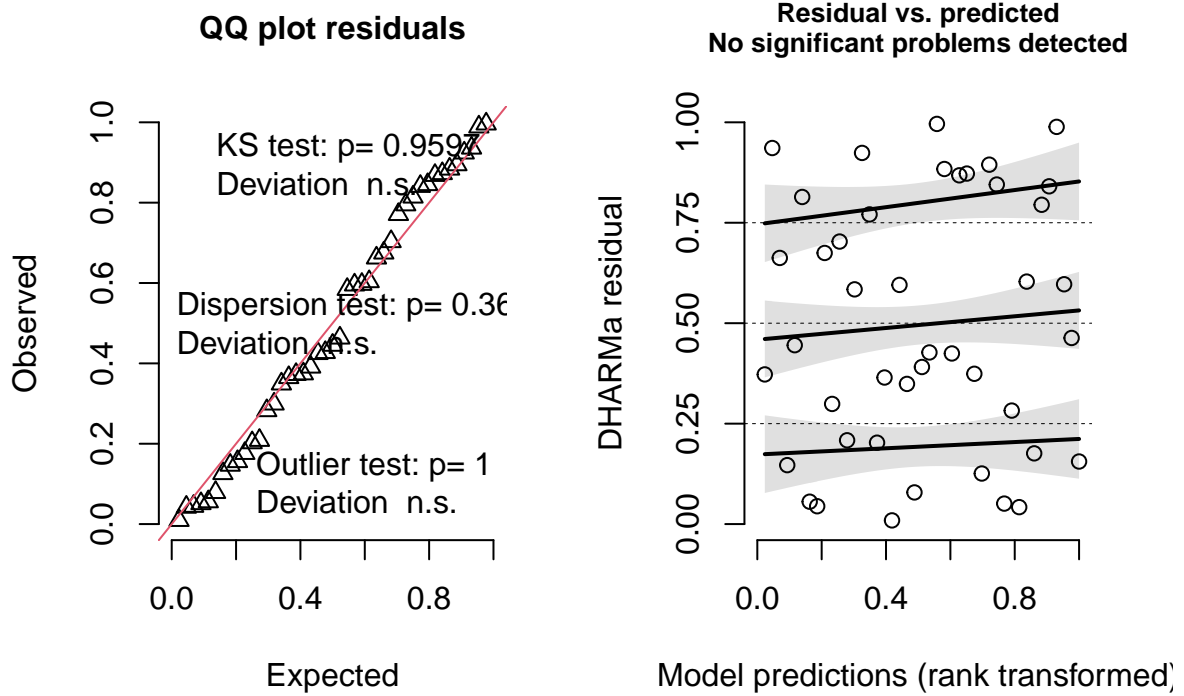
DHARMa residual



NULL

Site: Cofr

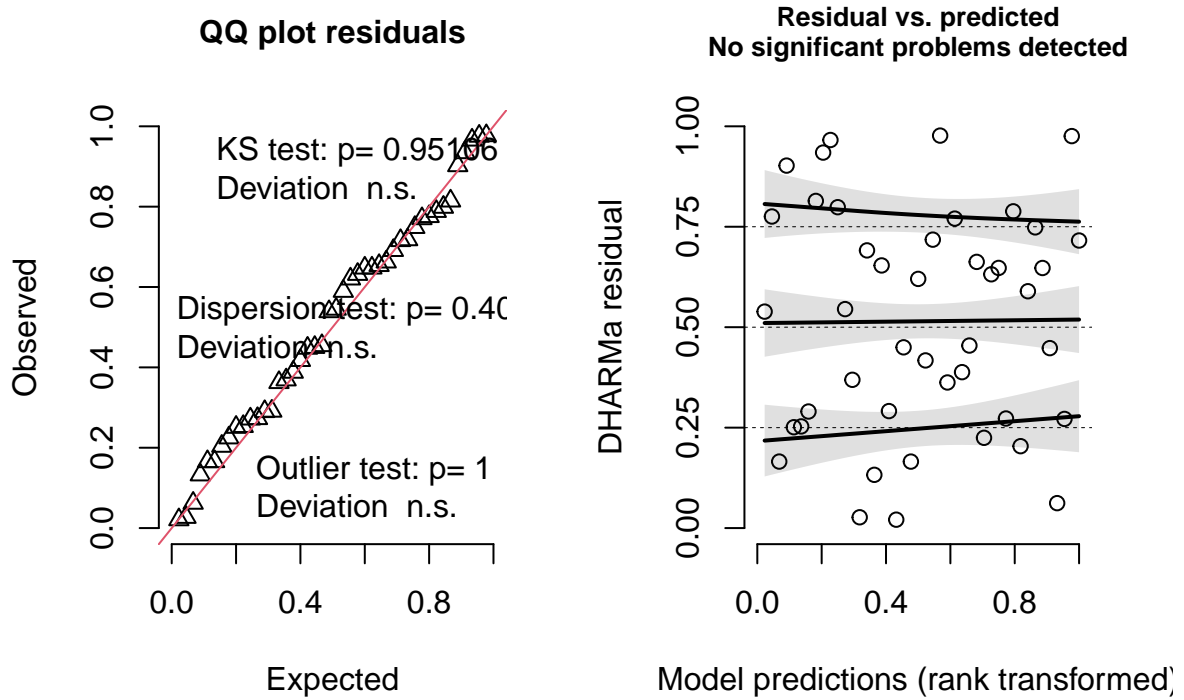
DHARMa residual



NULL

Site: Joma

DHARMa residual



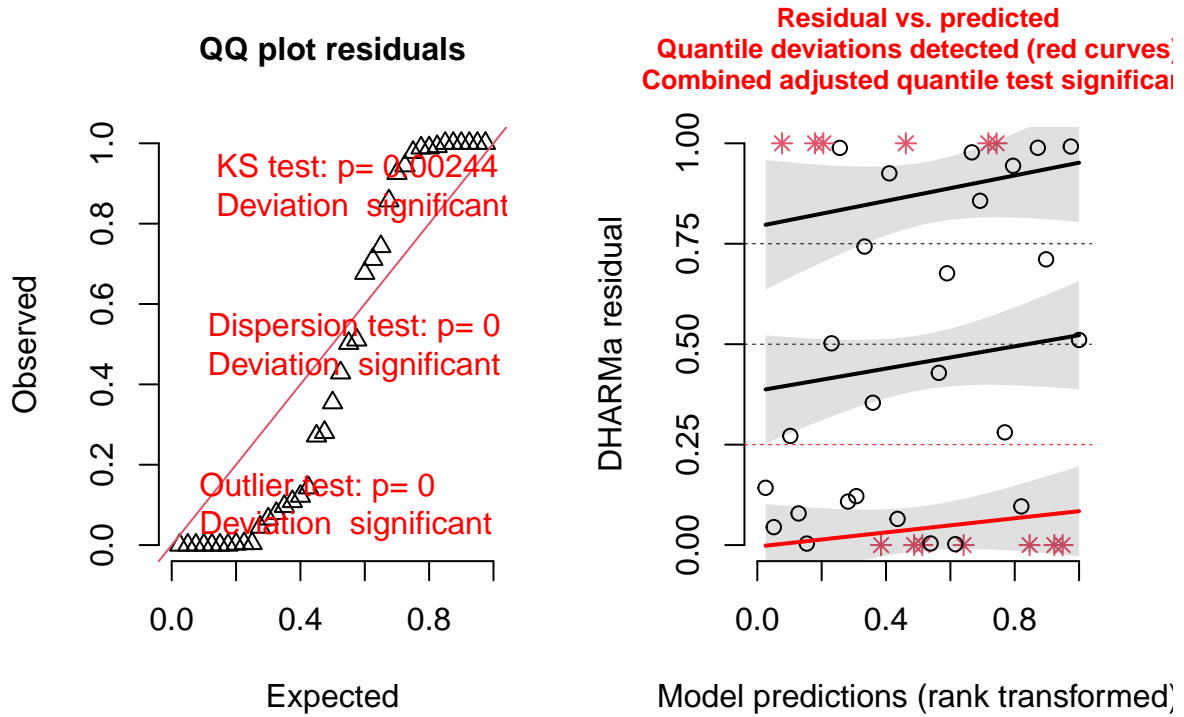
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Poisson distribution

We now show the residual checks for models fit to our pooled macro-moth data using the Poisson distribution.

Site: AUCA

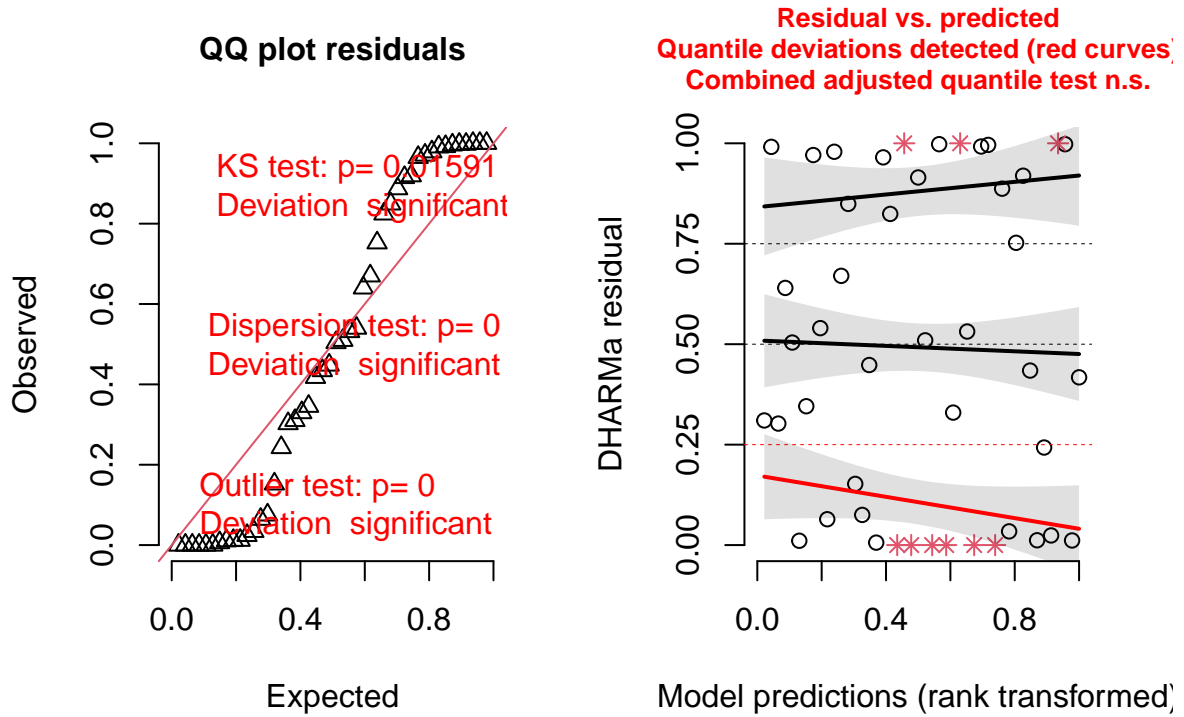
DHARMa residual



NULL

Site: PRCR

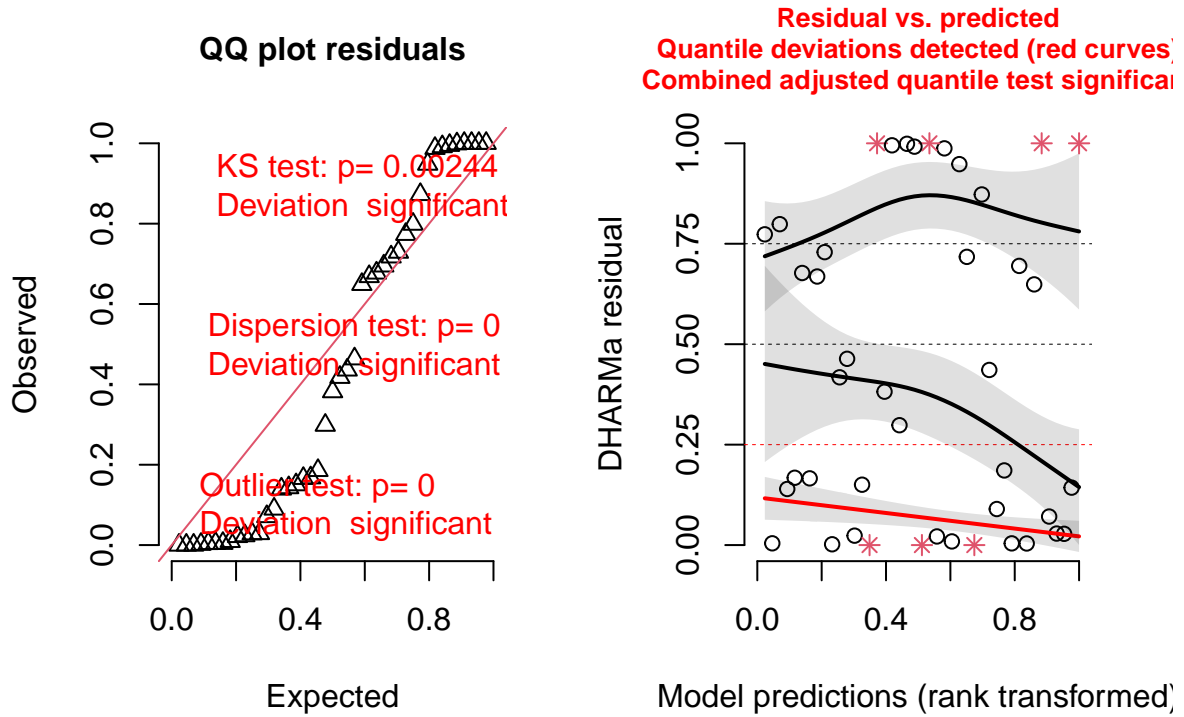
DHARMa residual



NULL

Site: Rist

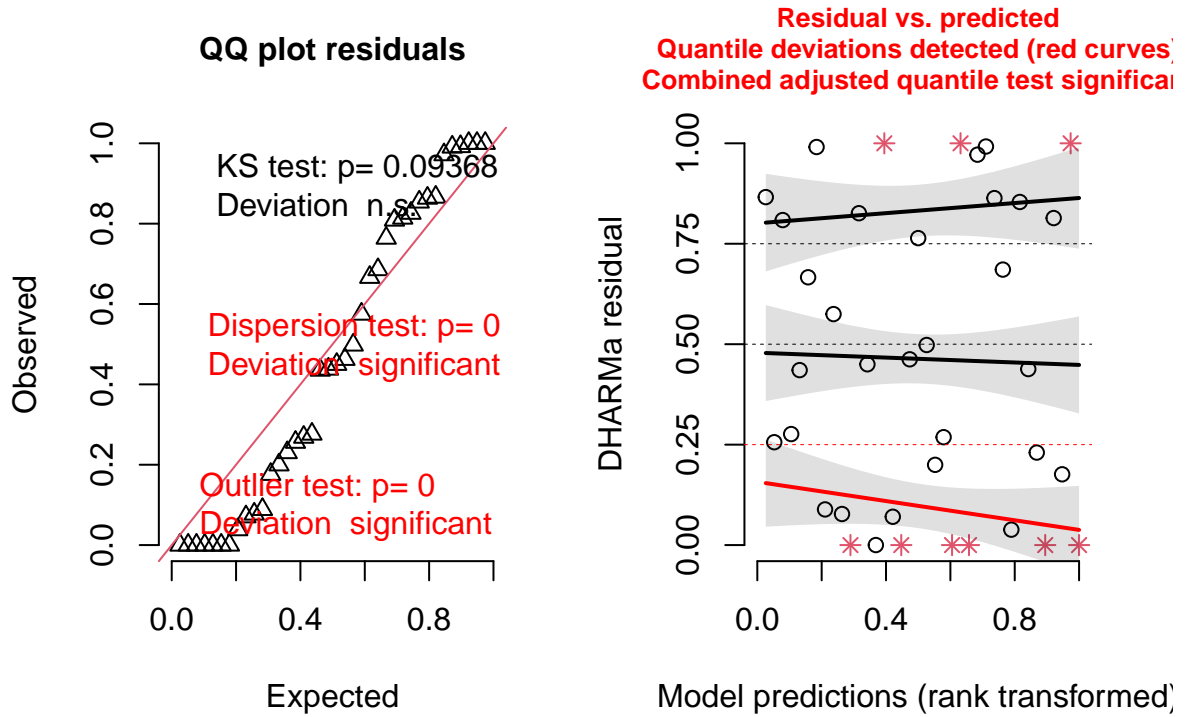
DHARMa residual



NULL

Site: Demi

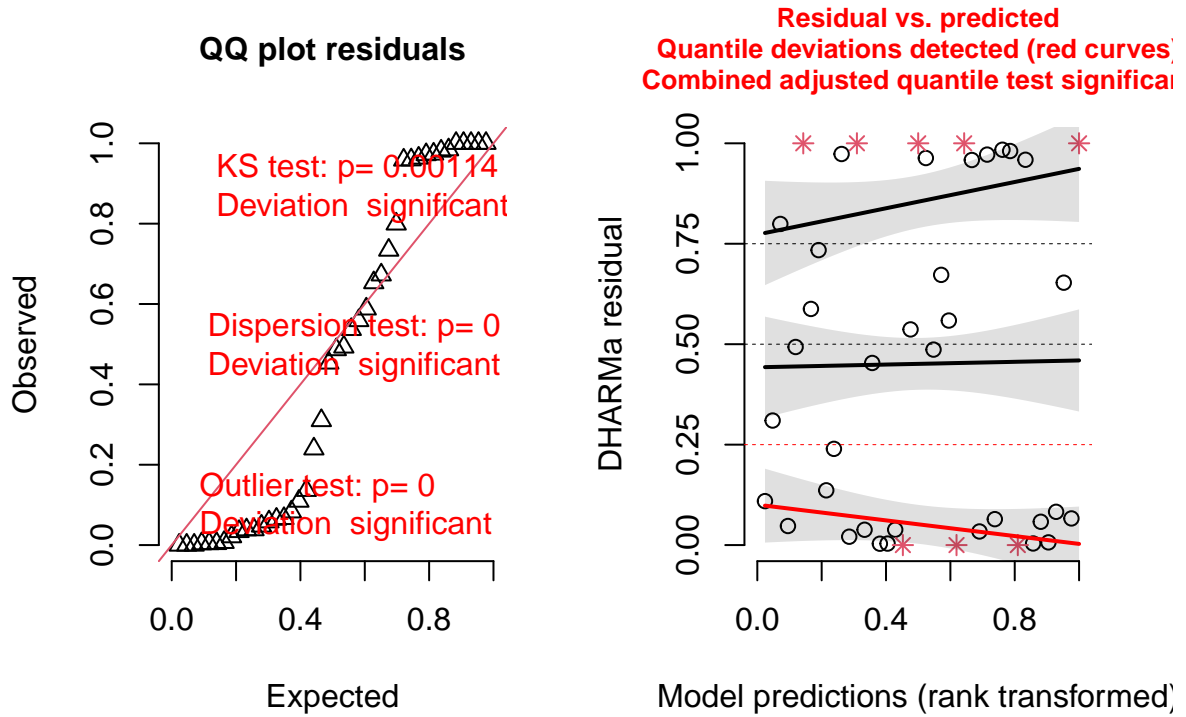
DHARMa residual



NULL

Site: Bowa

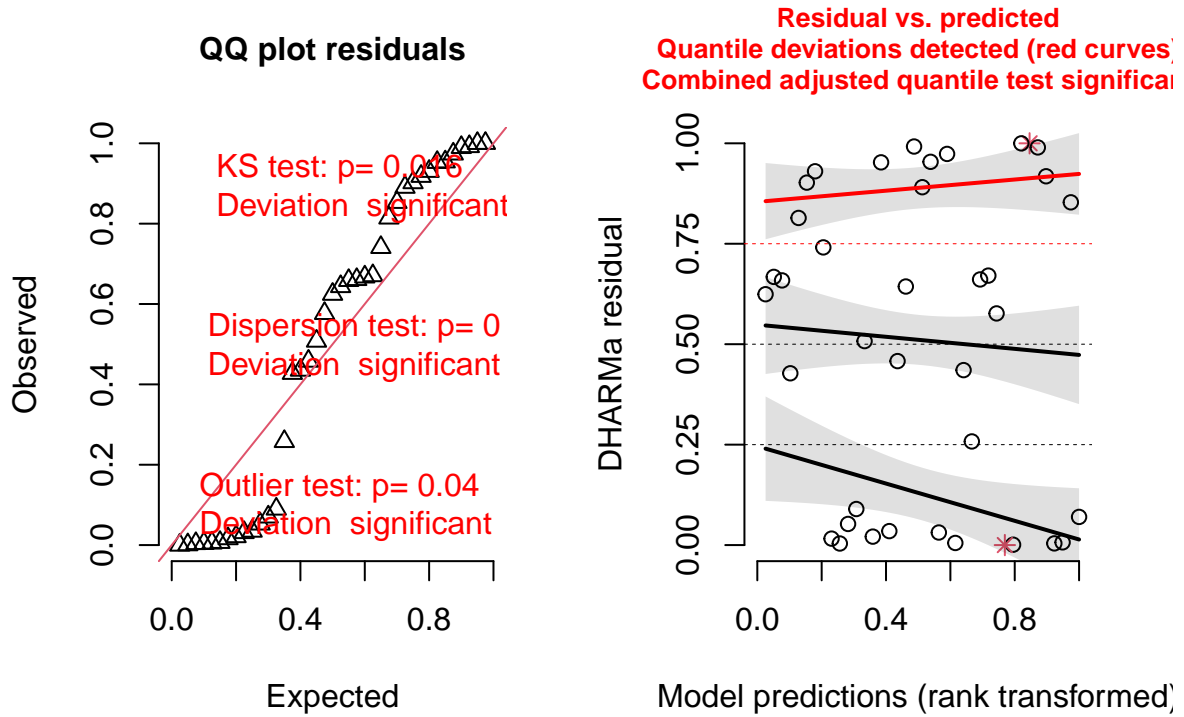
DHARMa residual



NULL

Site: Biva

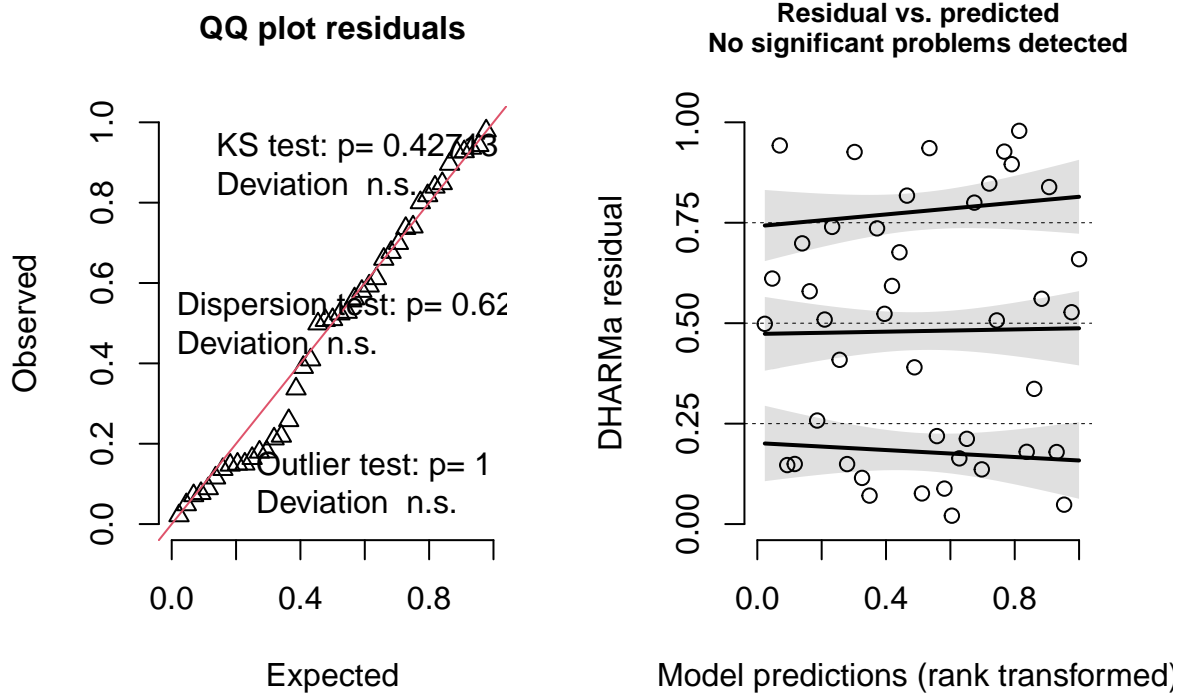
DHARMa residual



NULL

Site: Baca

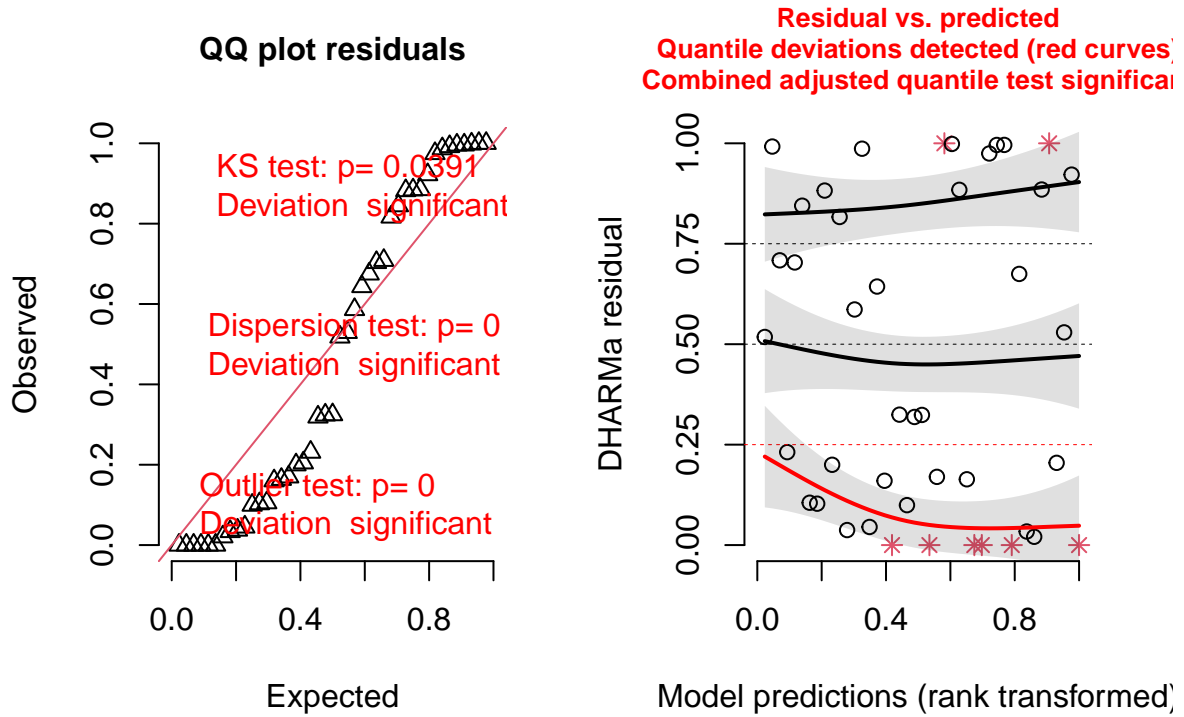
DHARMa residual



NULL

Site: Cofr

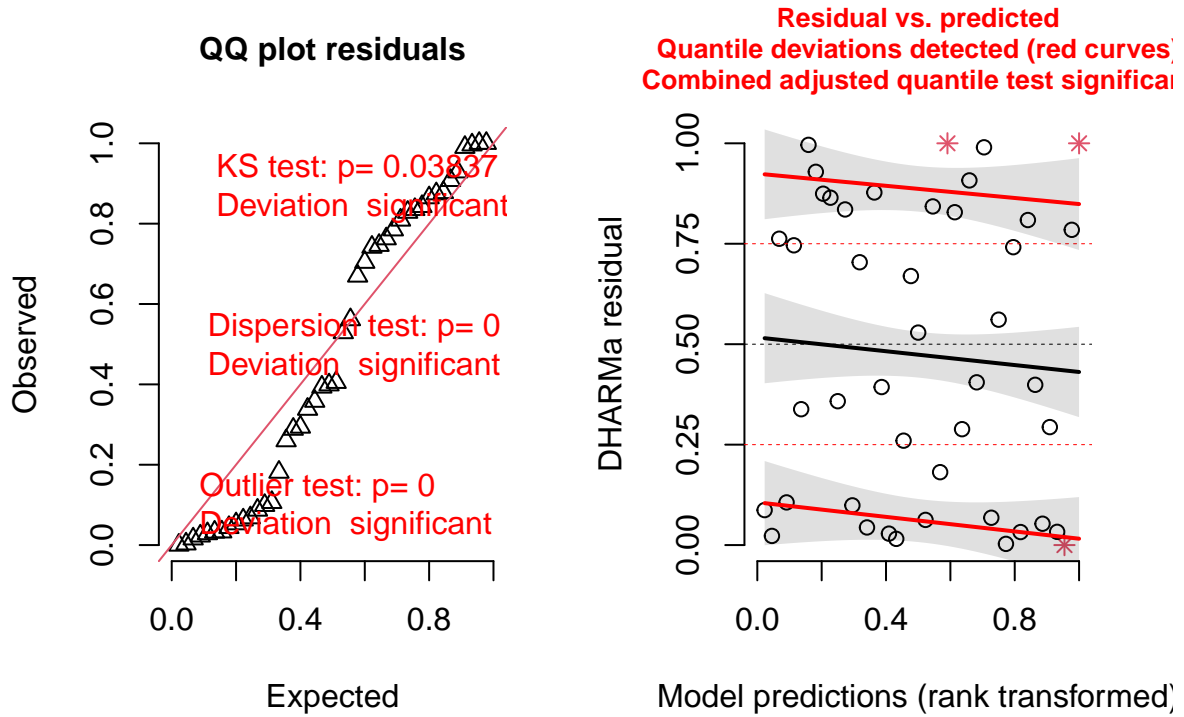
DHARMa residual



NULL

Site: Joma

DHARMa residual



NULL

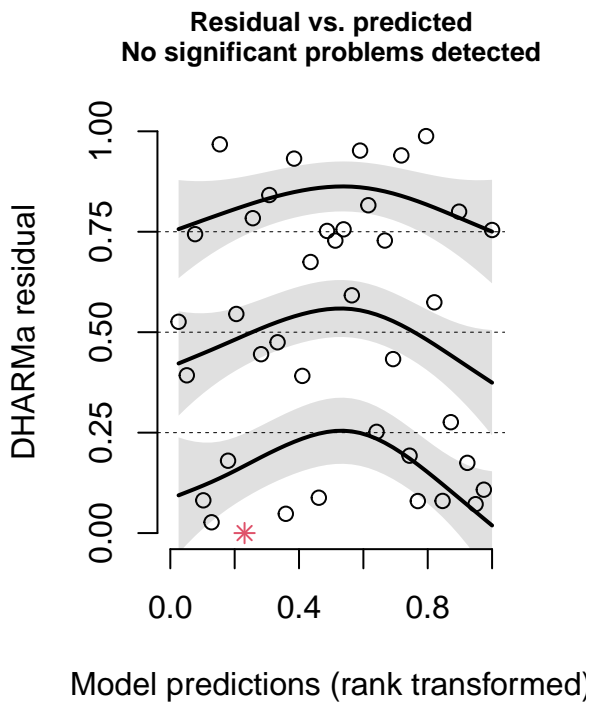
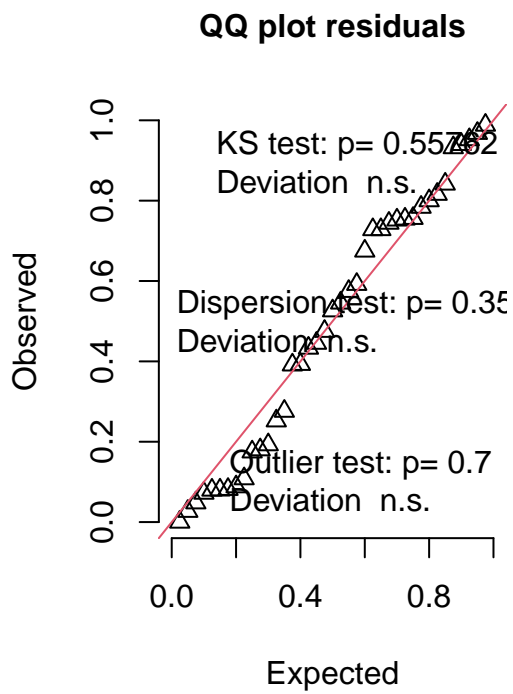
Pooled micro-moth checks

Negative binomial distributions

We now show the residual checks for models fit using the negative binomial distribution to our pooled micro-moth data.

Site: AUCA

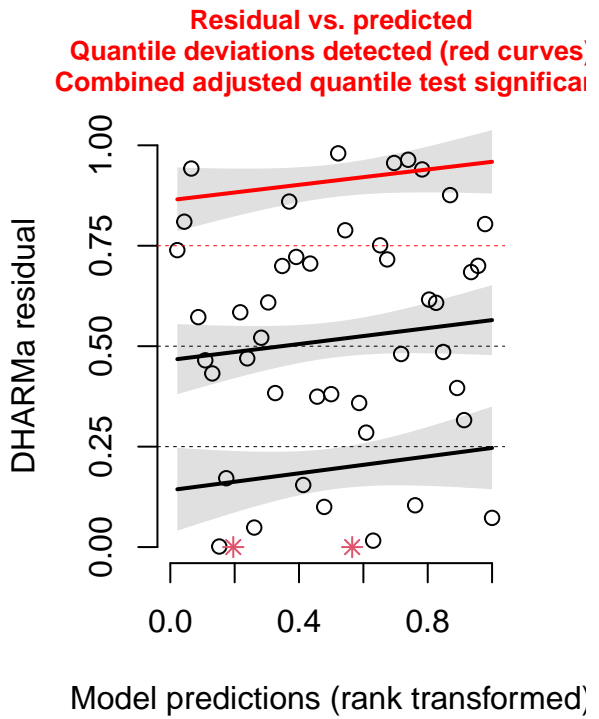
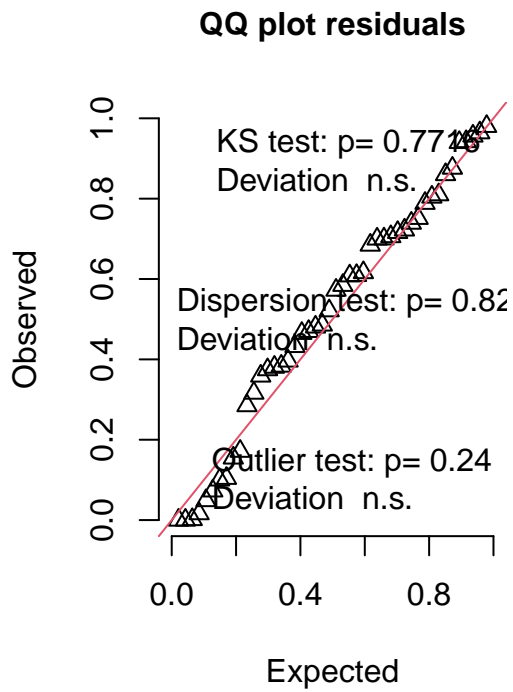
DHARMa residual



NULL

Site: PRCR

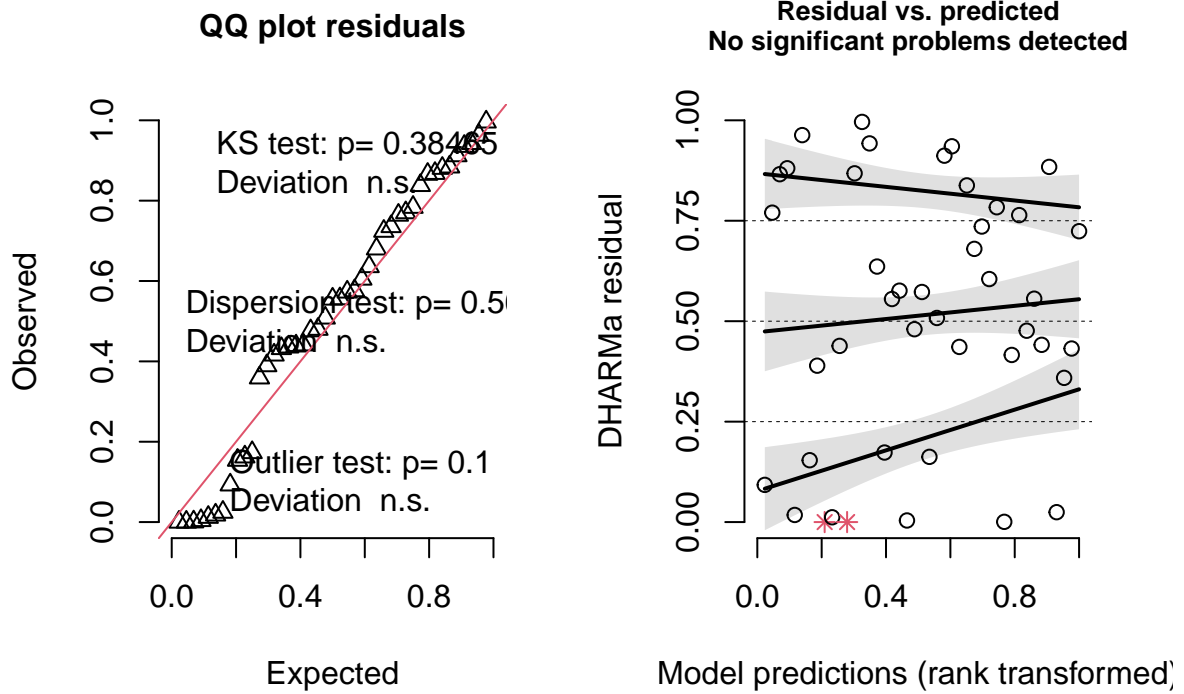
DHARMa residual



NULL

Site: Rist

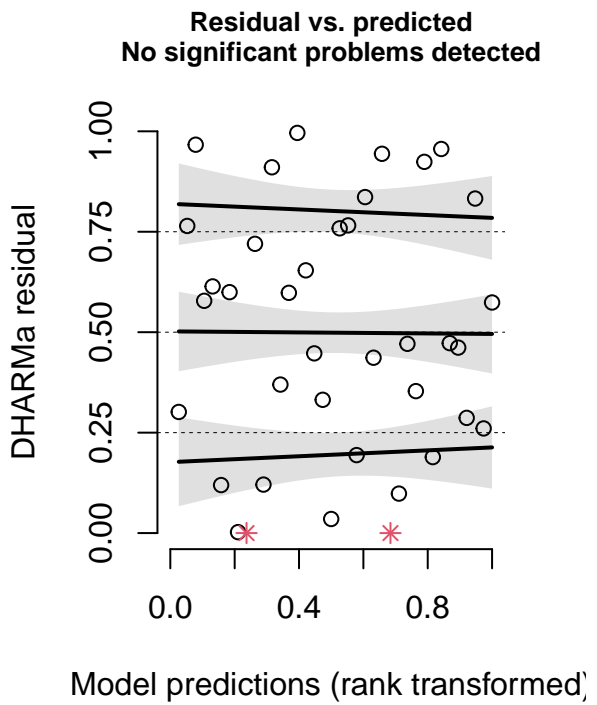
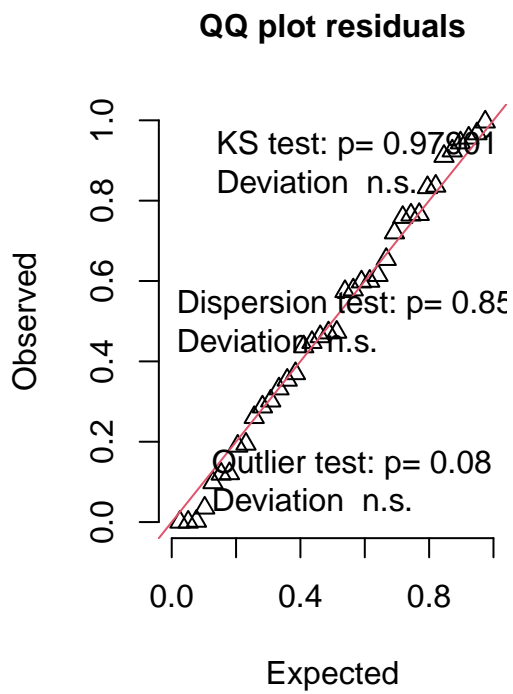
DHARMa residual



NULL

Site: Demi

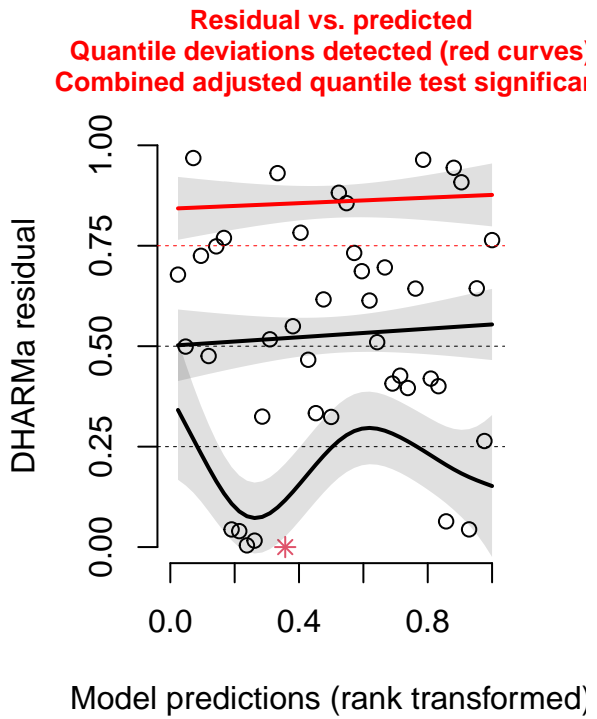
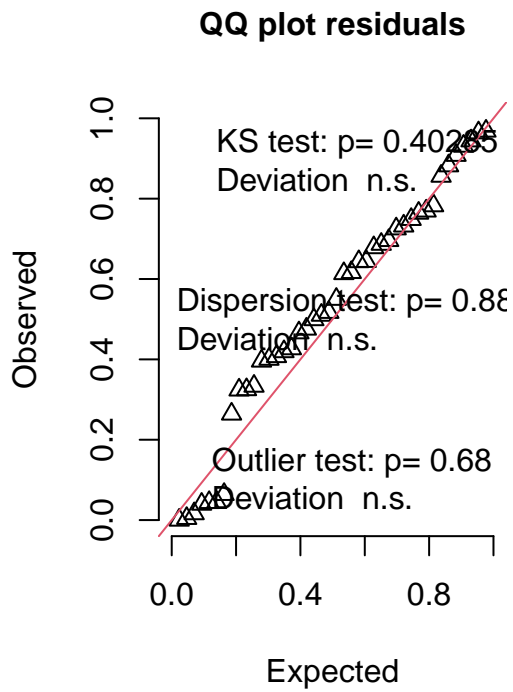
DHARMa residual



NULL

Site: Bowa

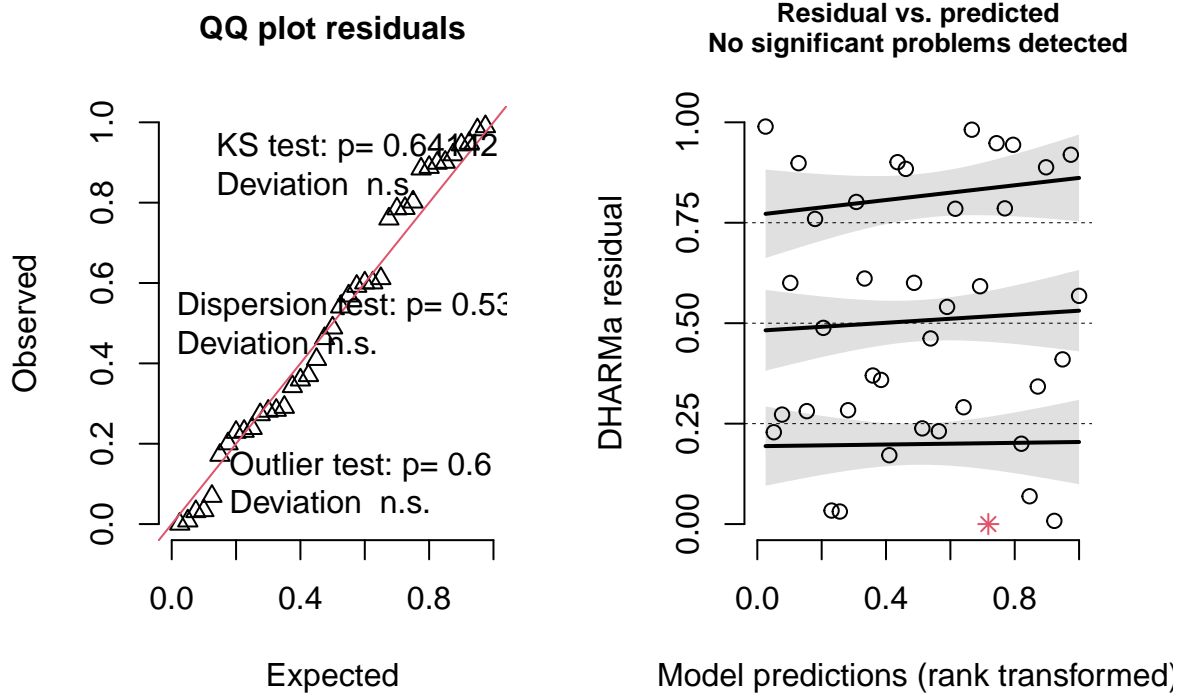
DHARMa residual



NULL

Site: Biva

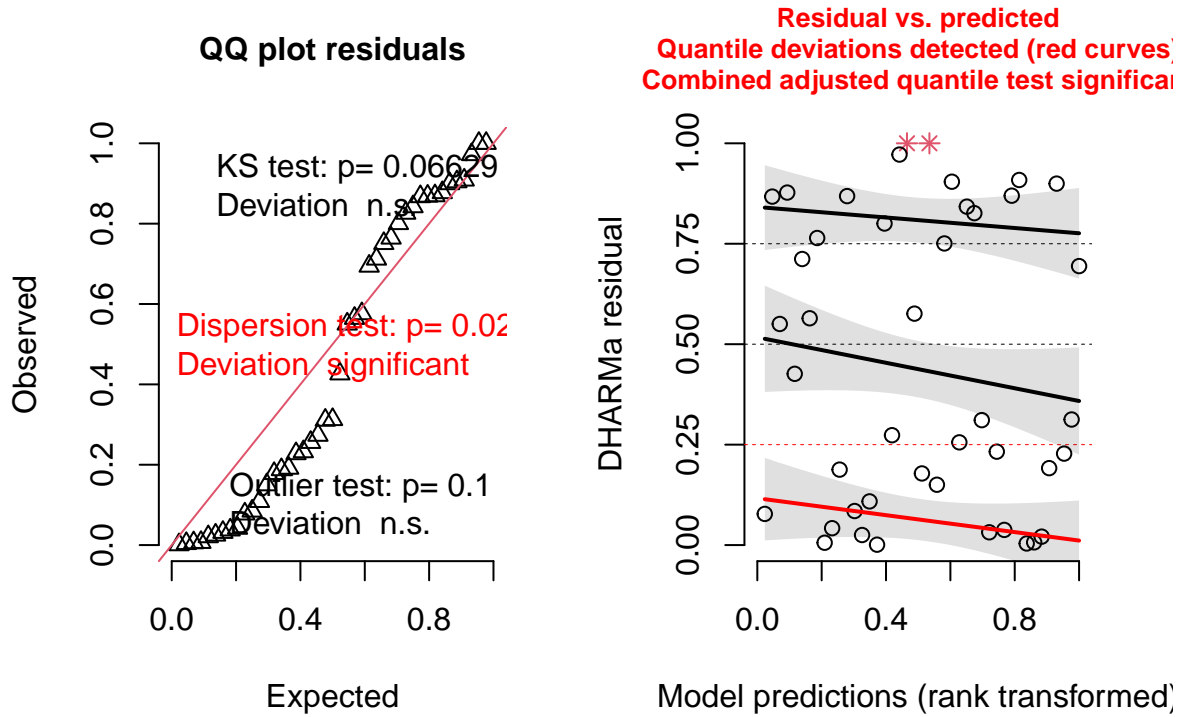
DHARMA residual



NULL

Site: Baca

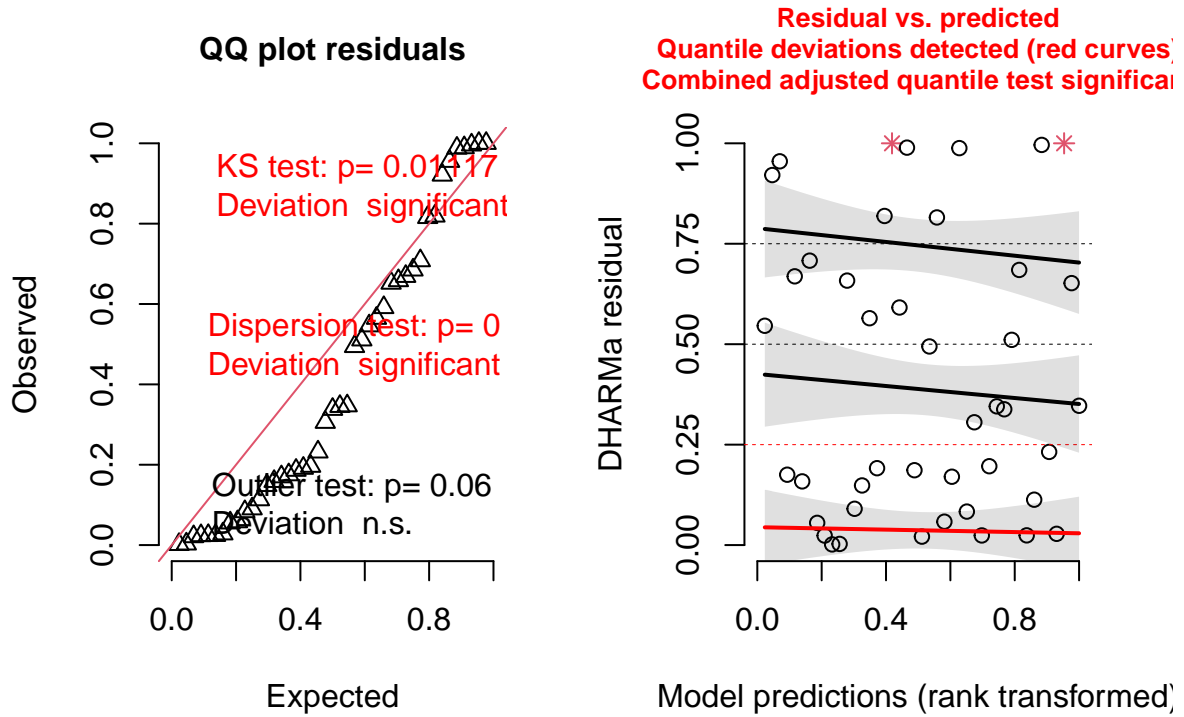
DHARMa residual



NULL

Site: Cofr

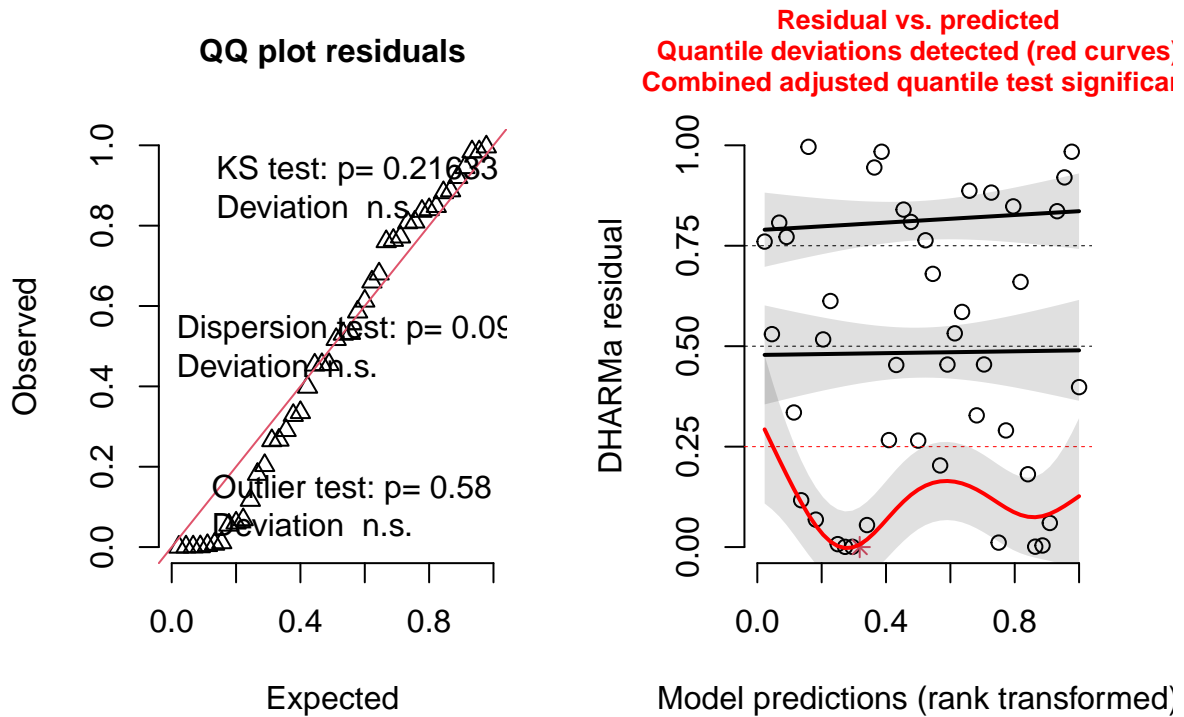
DHARMa residual



NULL

Site: Joma

DHARMa residual



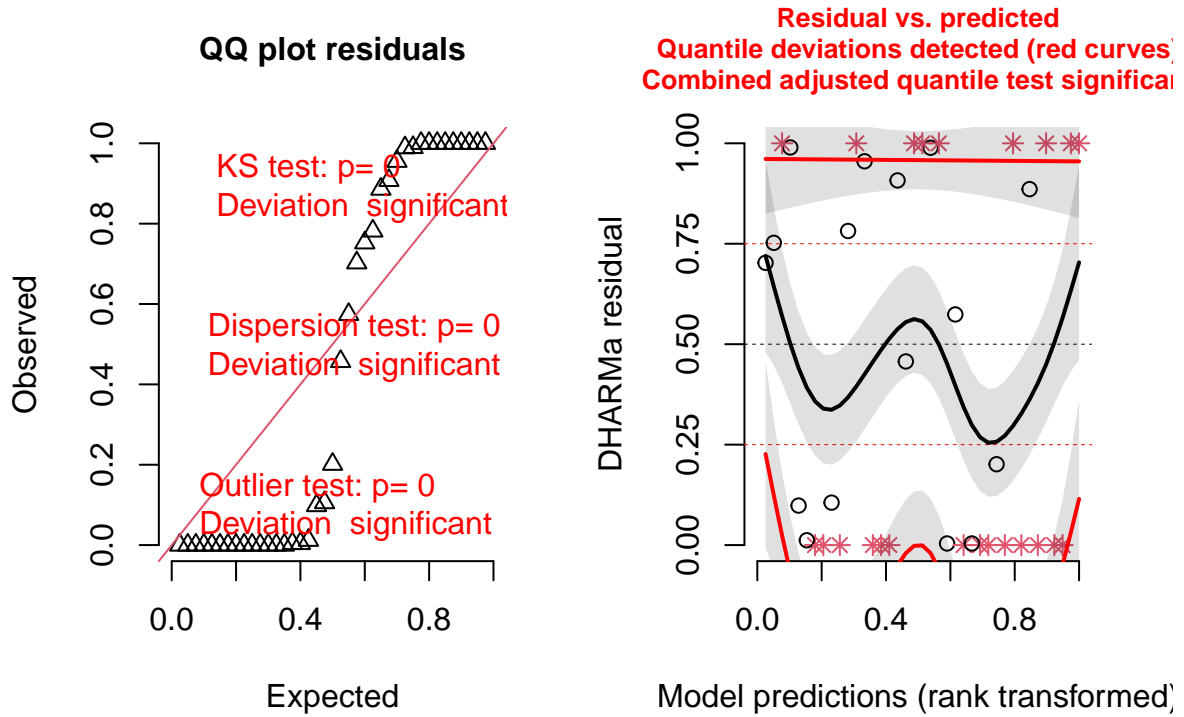
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Now fit using poisson

And finally, we show the residual checks for models fit using the Poisson distribution to our pooled micro-moth data.

Site: AUCA

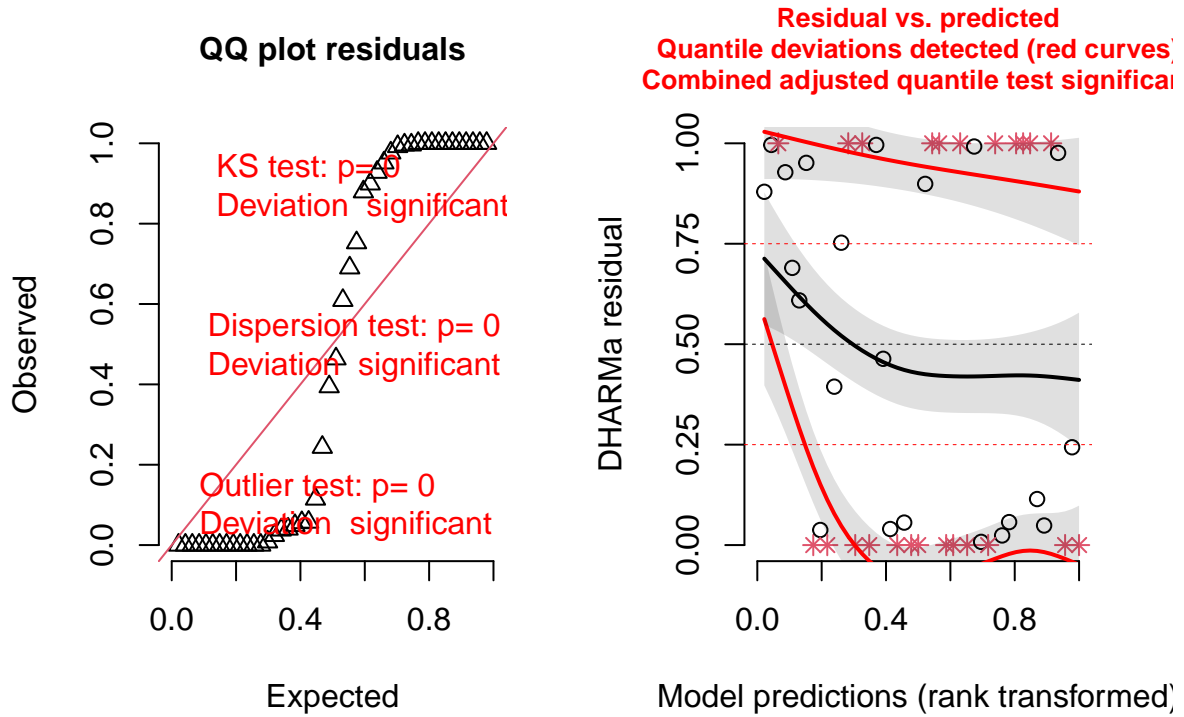
DHARMa residual



NULL

Site: PRCR

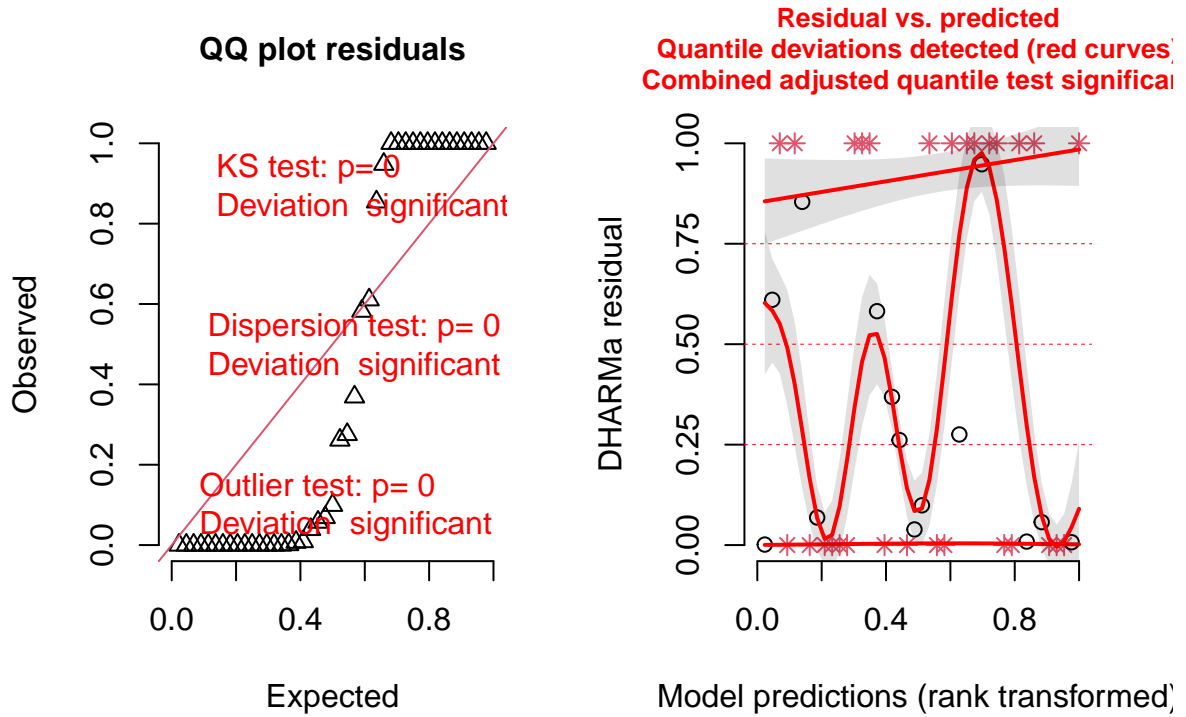
DHARMa residual



NULL

Site: Rist

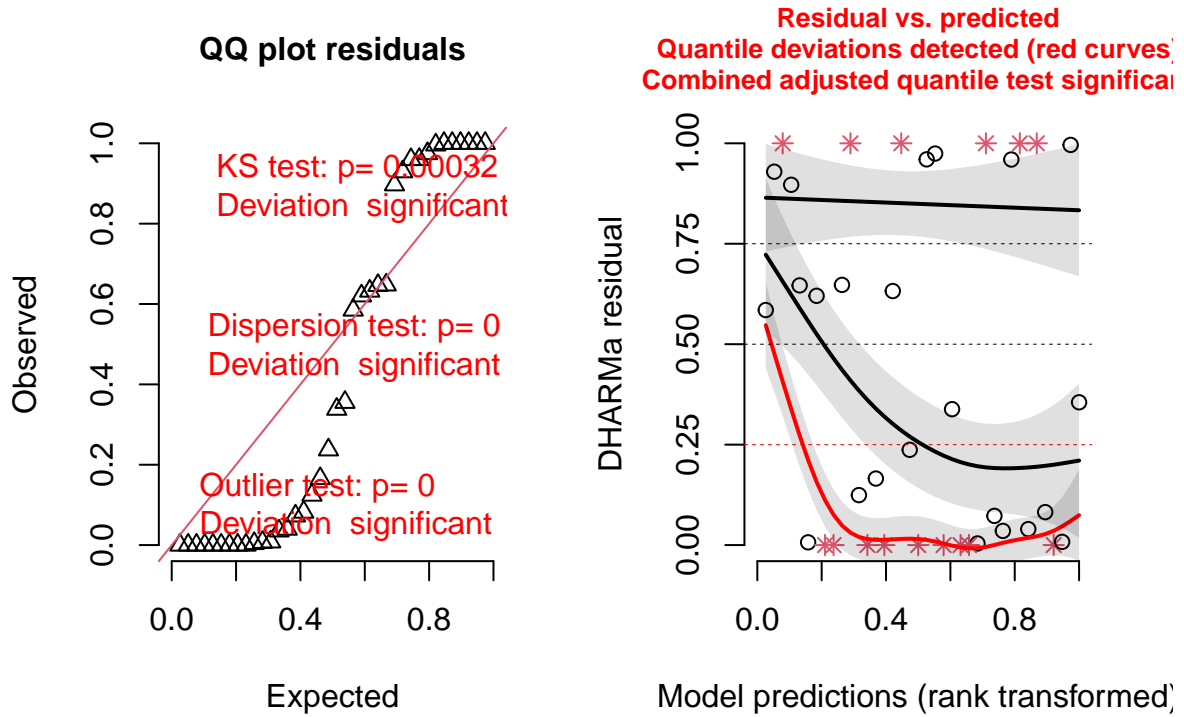
DHARMa residual



NULL

Site: Demi

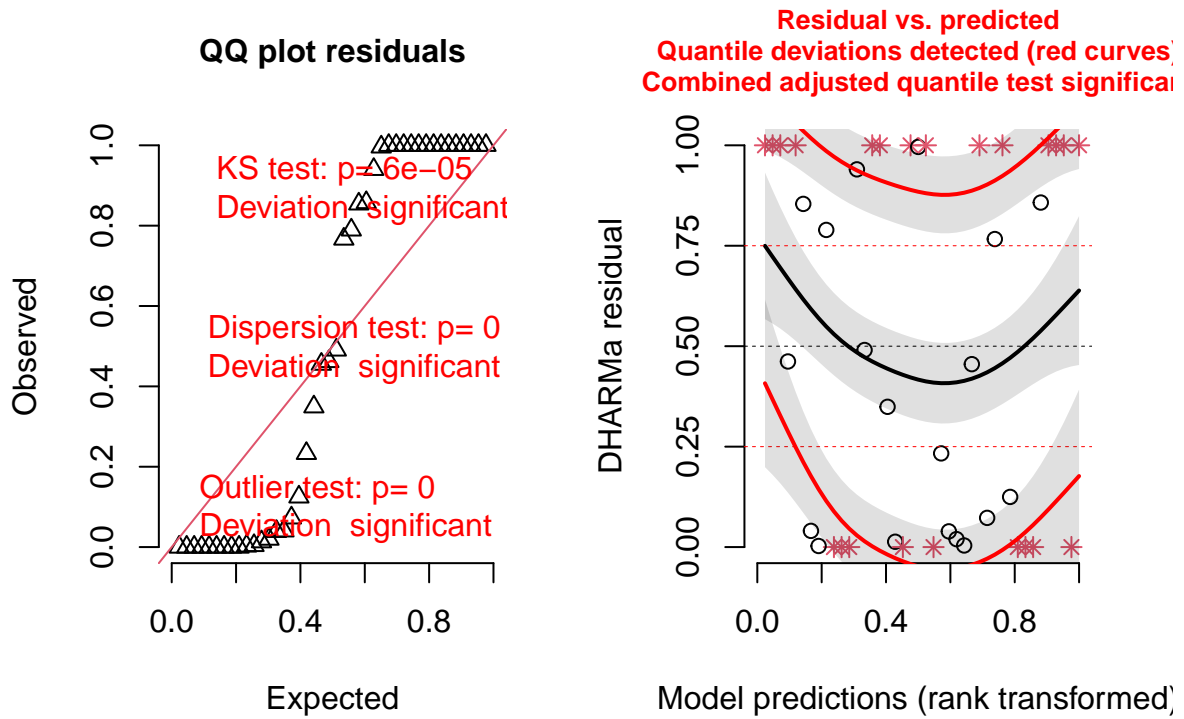
DHARMa residual



NULL

Site: Bowa

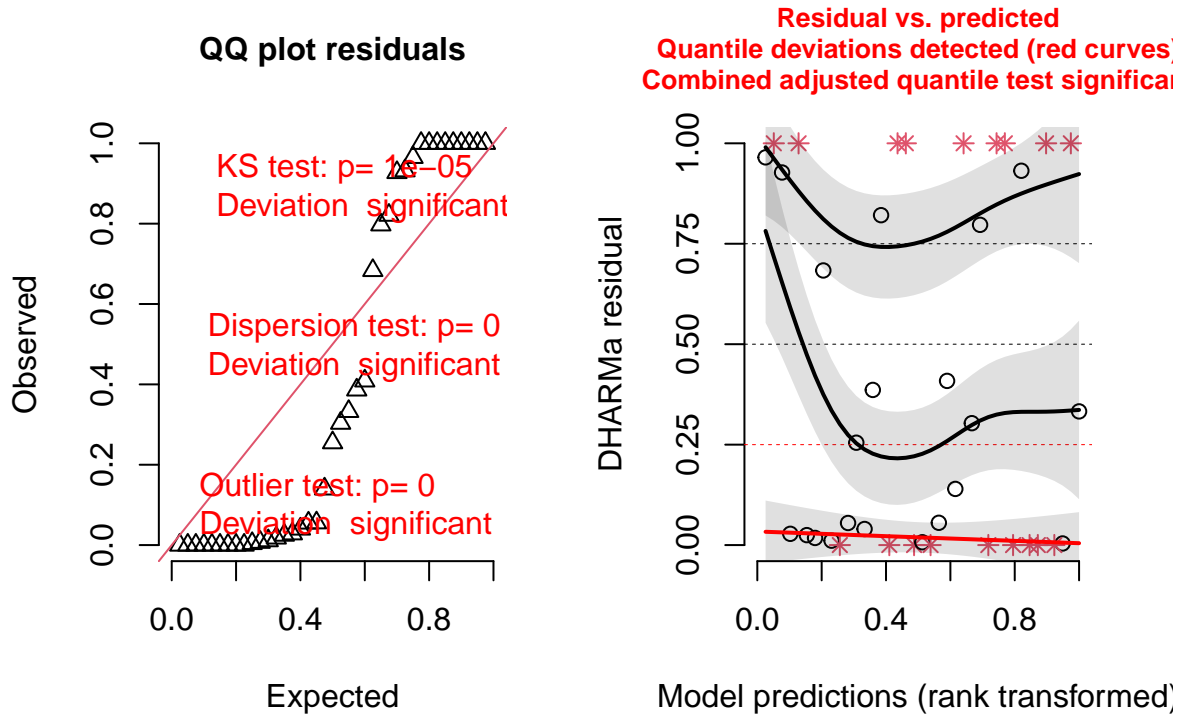
DHARMa residual



NULL

Site: Biva

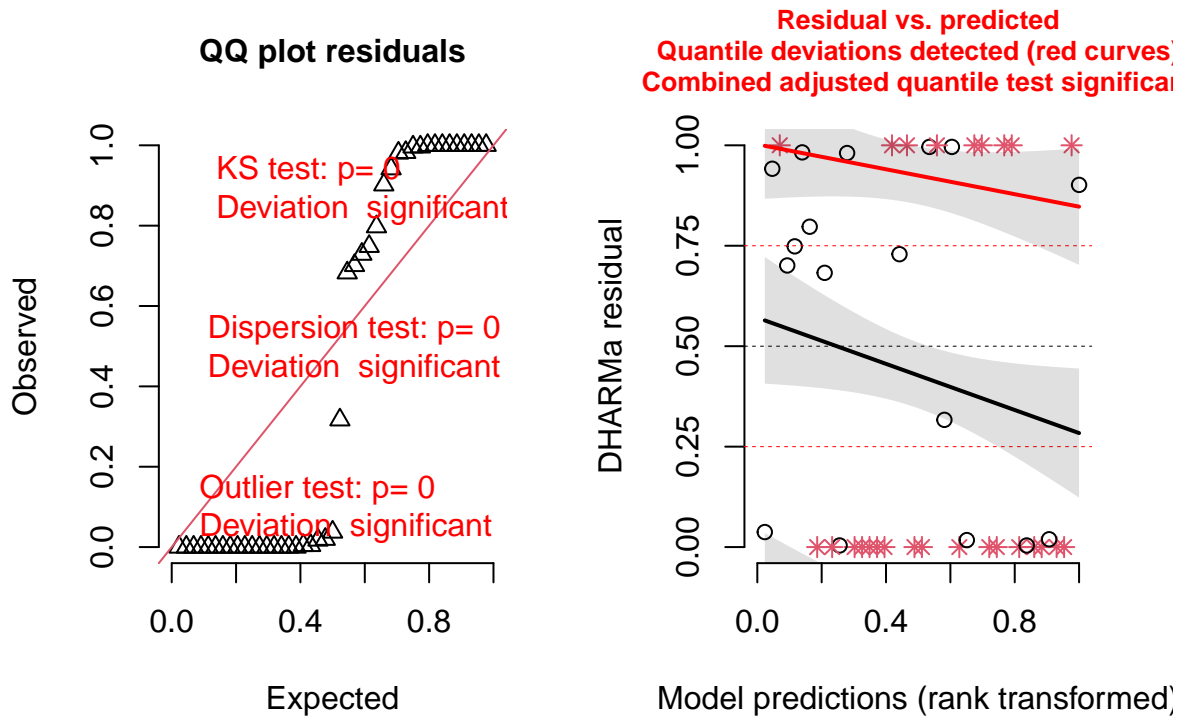
DHARMa residual



NULL

Site: Baca

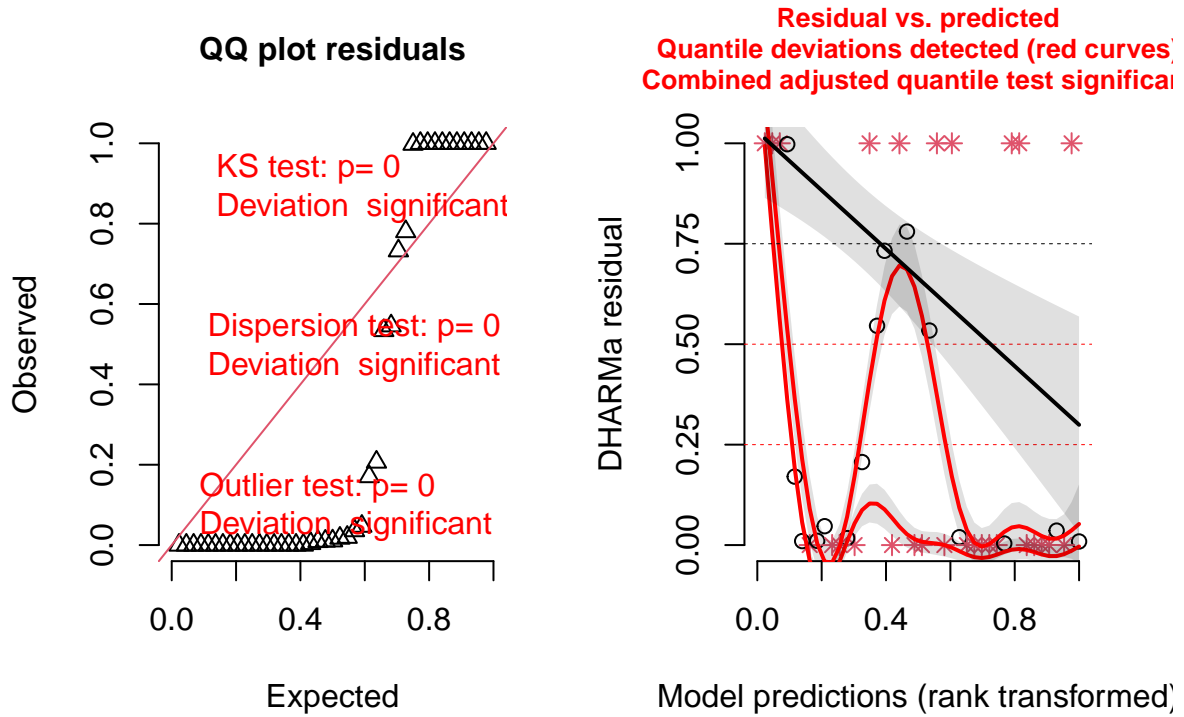
DHARMa residual



NULL

Site: Cofr

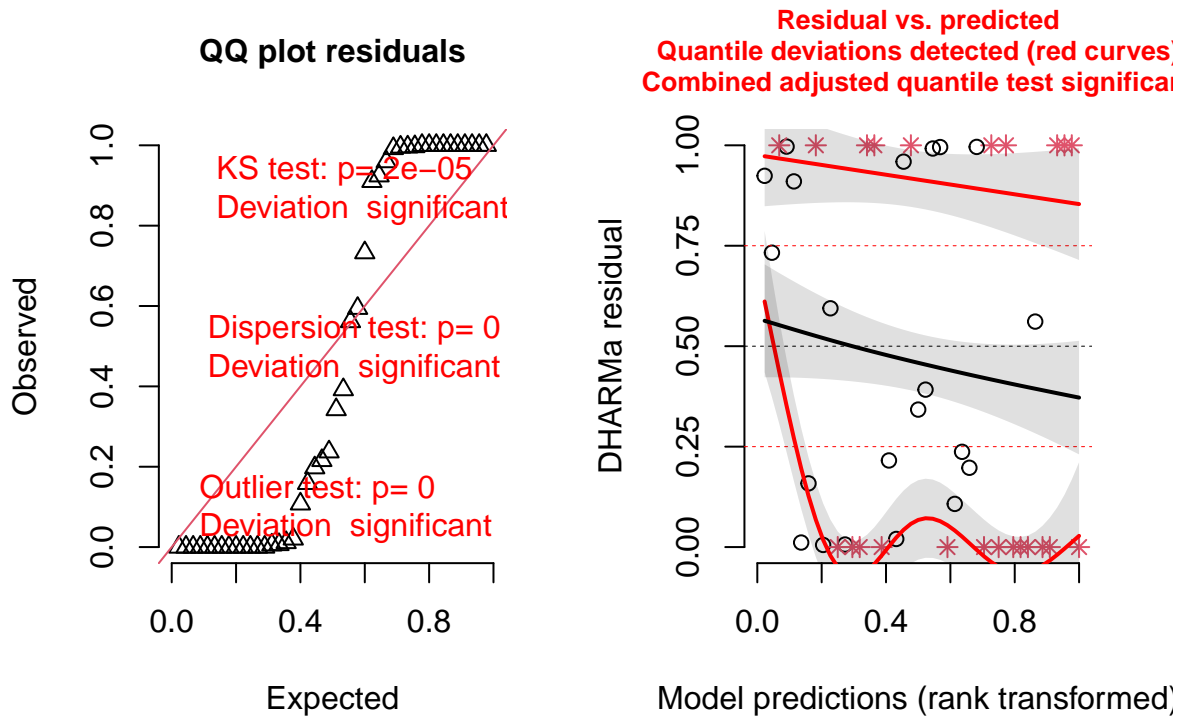
DHARMa residual



NULL

Site: Joma

DHARMa residual



NULL

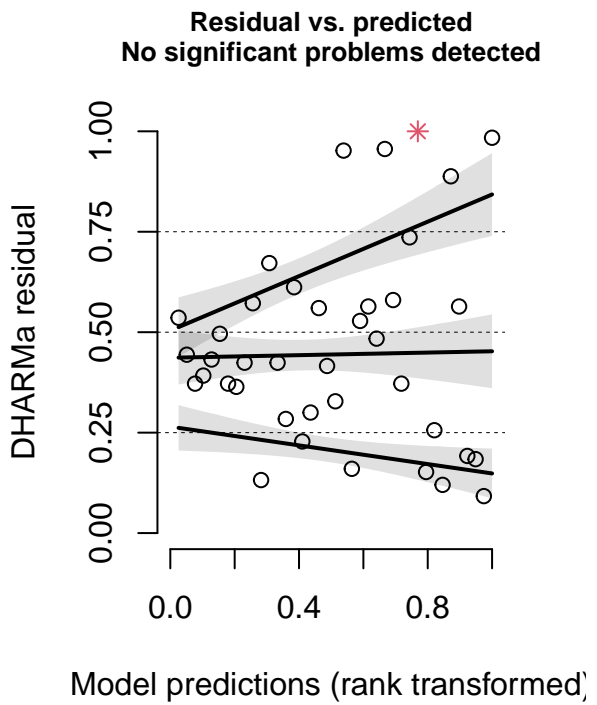
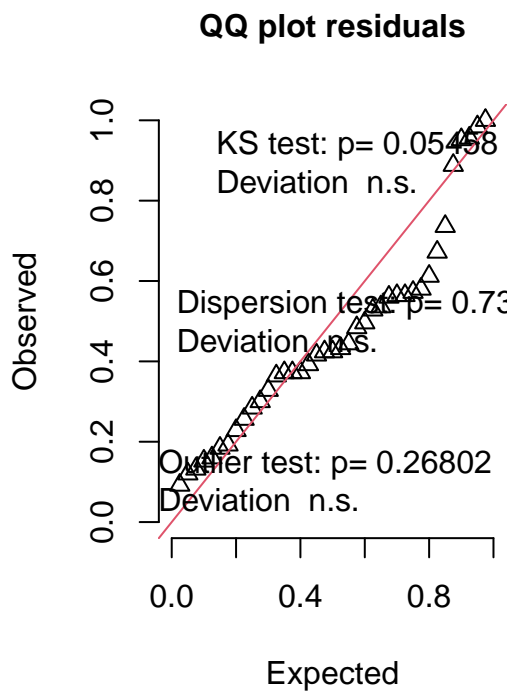
Frass model residual checks

Fit with gaussian distribution

We end with checks on our models fit to the frass data.

Site: AUCA

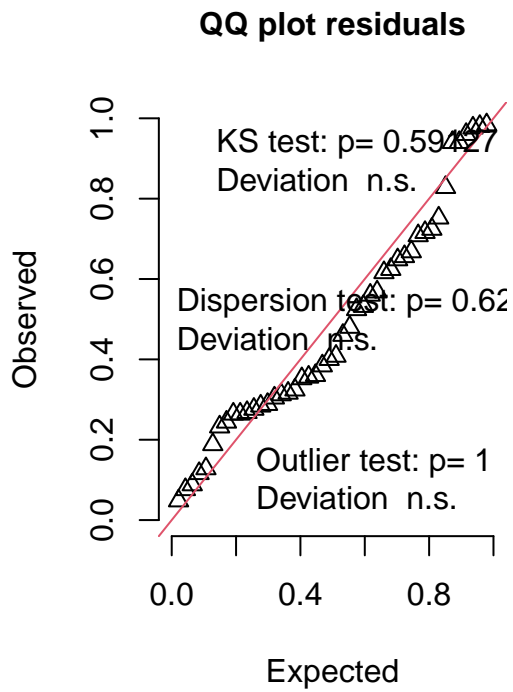
DHARMa residual



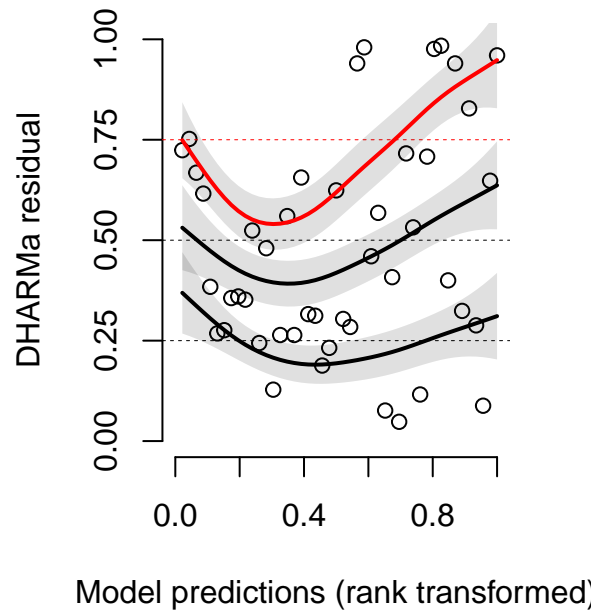
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Site: PRCR

DHARMa residual



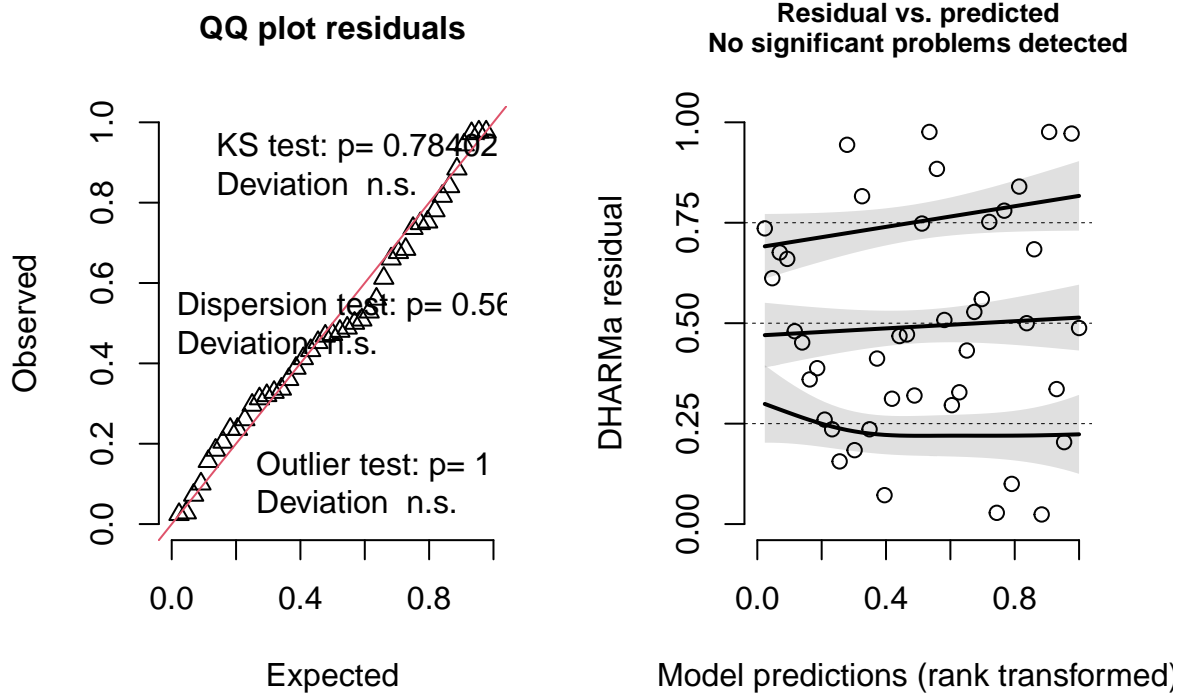
Residual vs. predicted
Quantile deviations detected (red curves)
Combined adjusted quantile test significant



NULL

Site: Rist

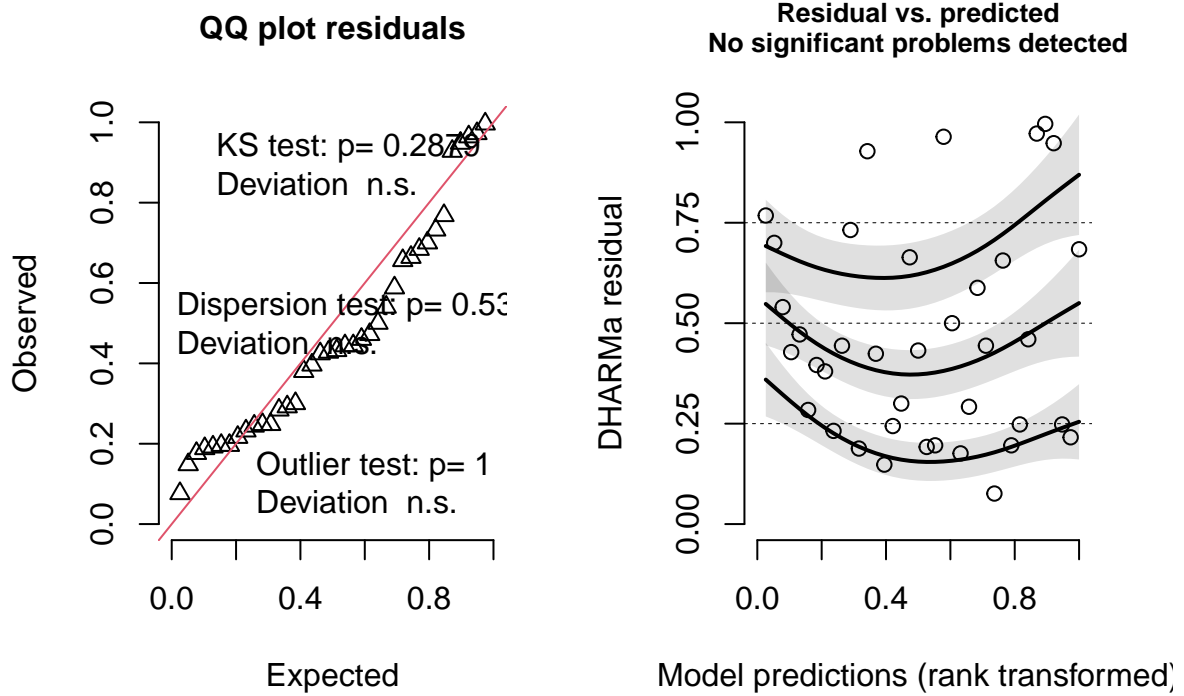
DHARMa residual



NULL

Site: Demi

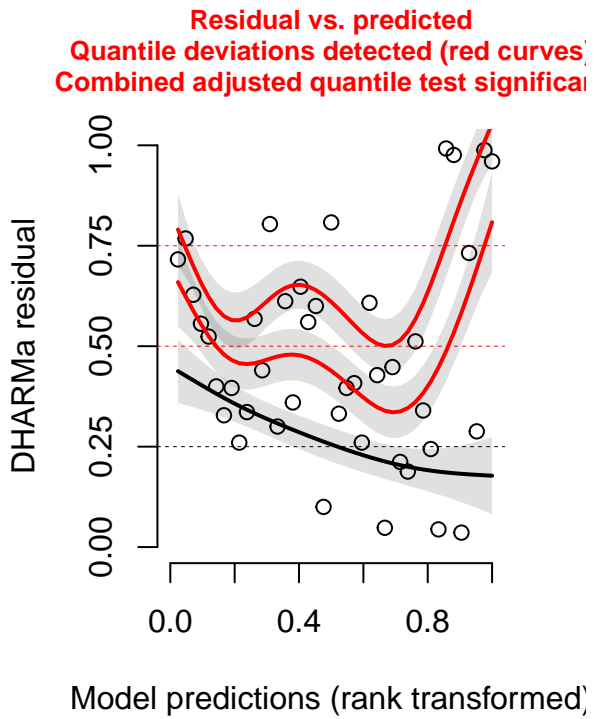
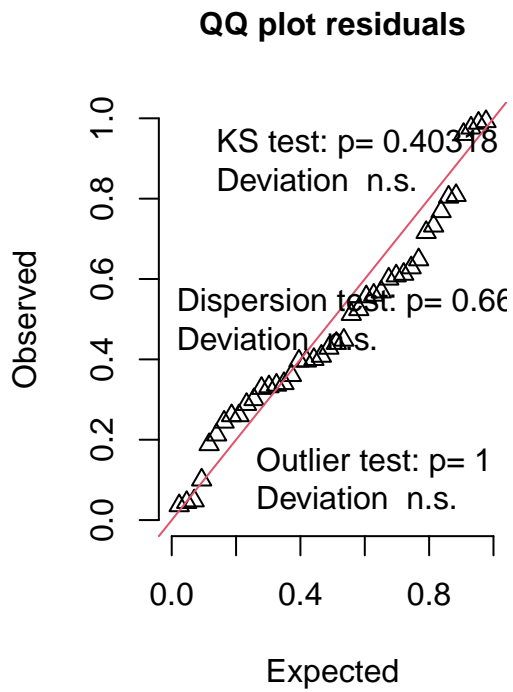
DHARMa residual



NULL

Site: Bowa

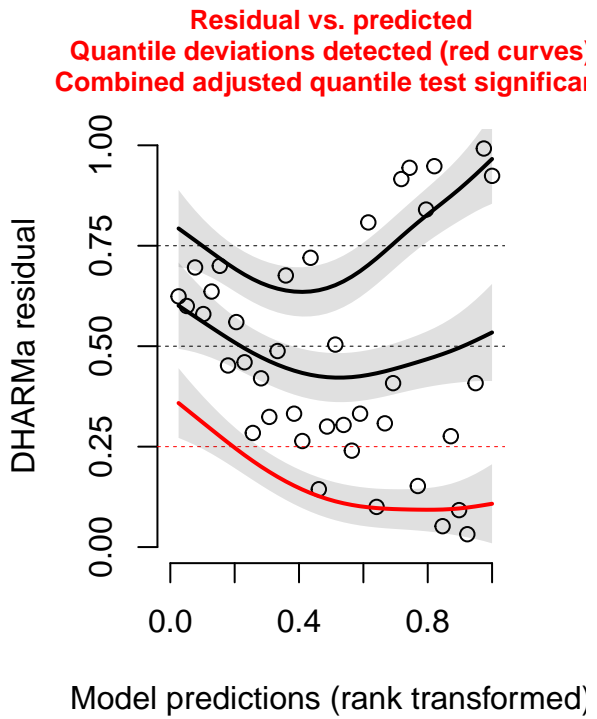
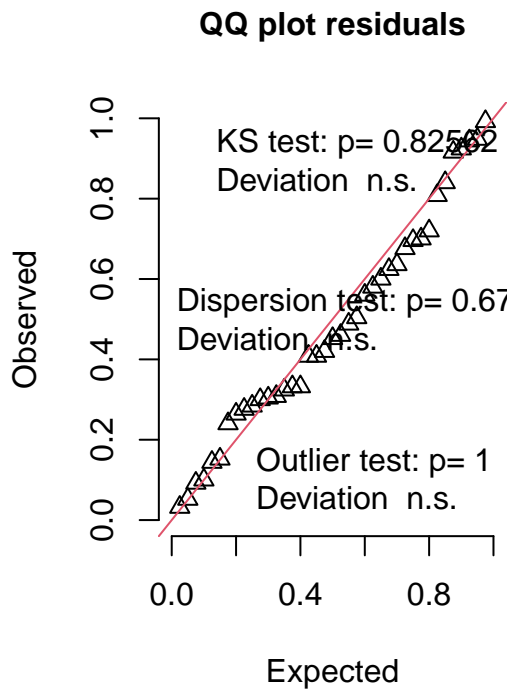
DHARMA residual



NULL

Site: Biva

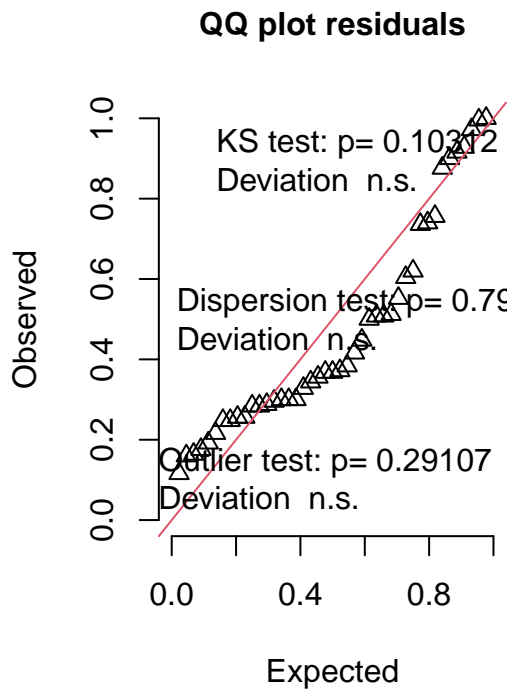
DHARMa residual



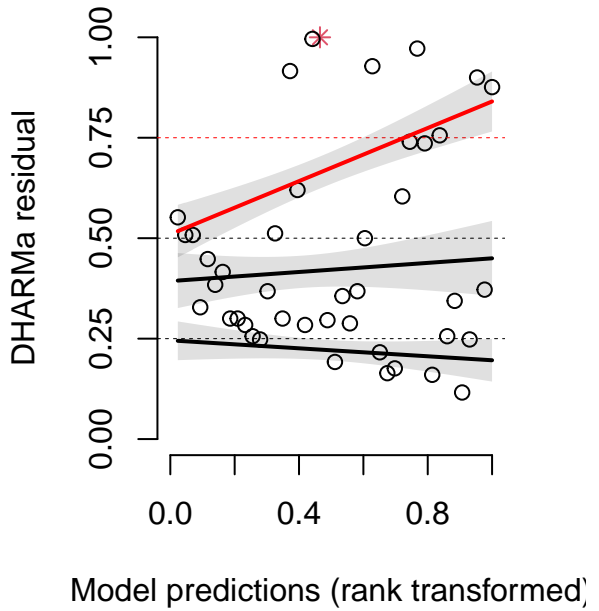
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Site: Baca

DHARMa residual



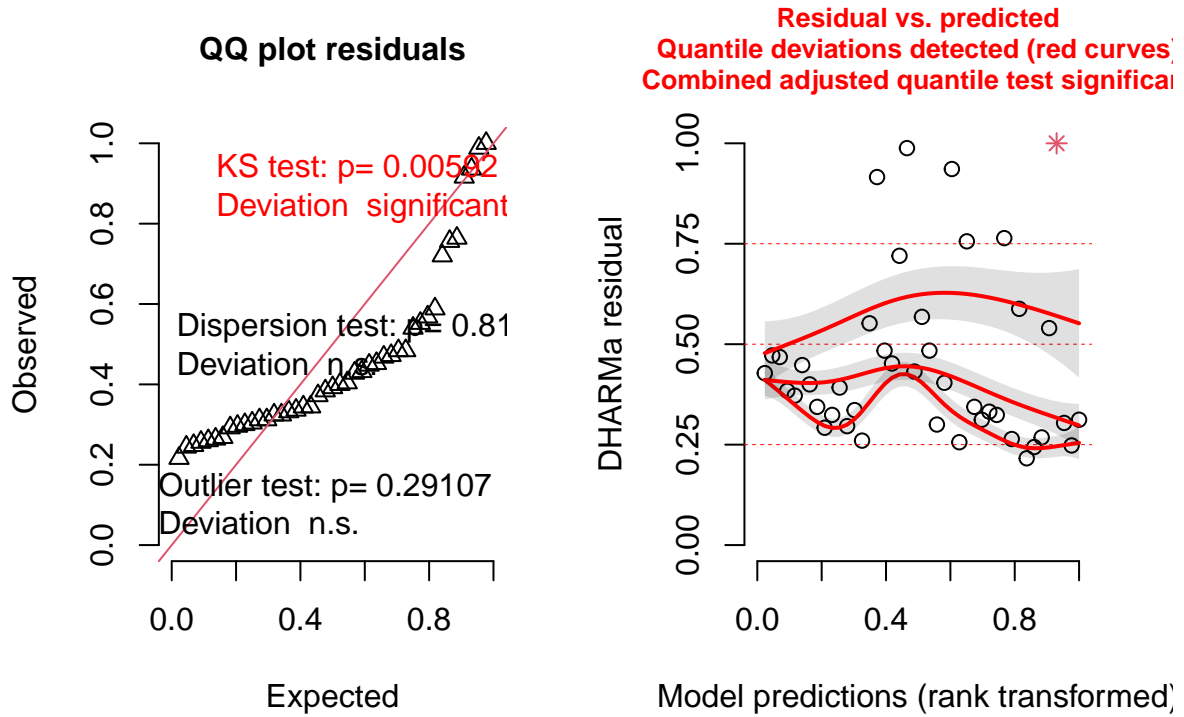
Residual vs. predicted
Quantile deviations detected (red curves)
Combined adjusted quantile test significant



NULL

Site: Cofr

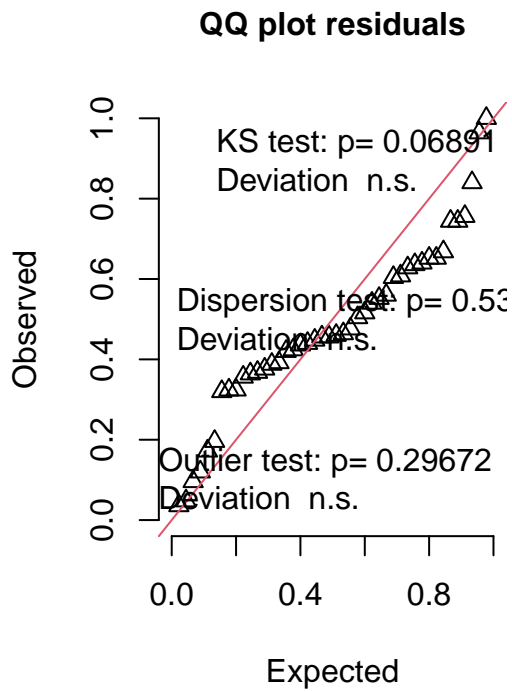
DHARMa residual



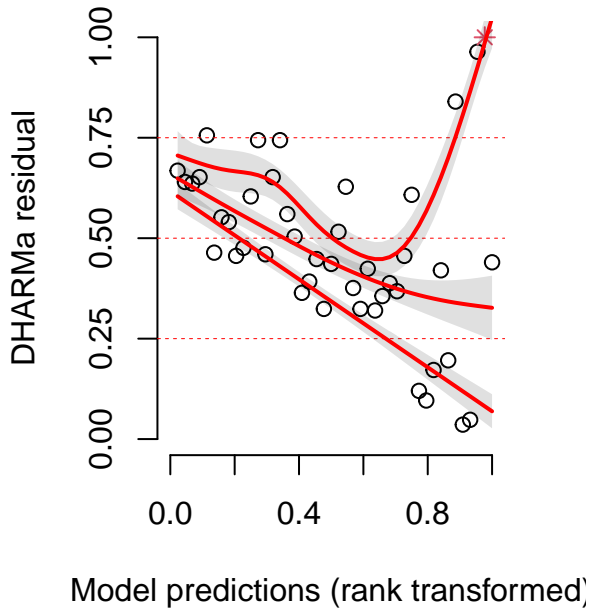
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Site: Joma

DHARMa residual



Residual vs. predicted
Quantile deviations detected (red curves)
Combined adjusted quantile test significant



NULL