

Individual Condition vs Nest Size

Ruth Sharpe

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AIC Values of all possible models with instar always included

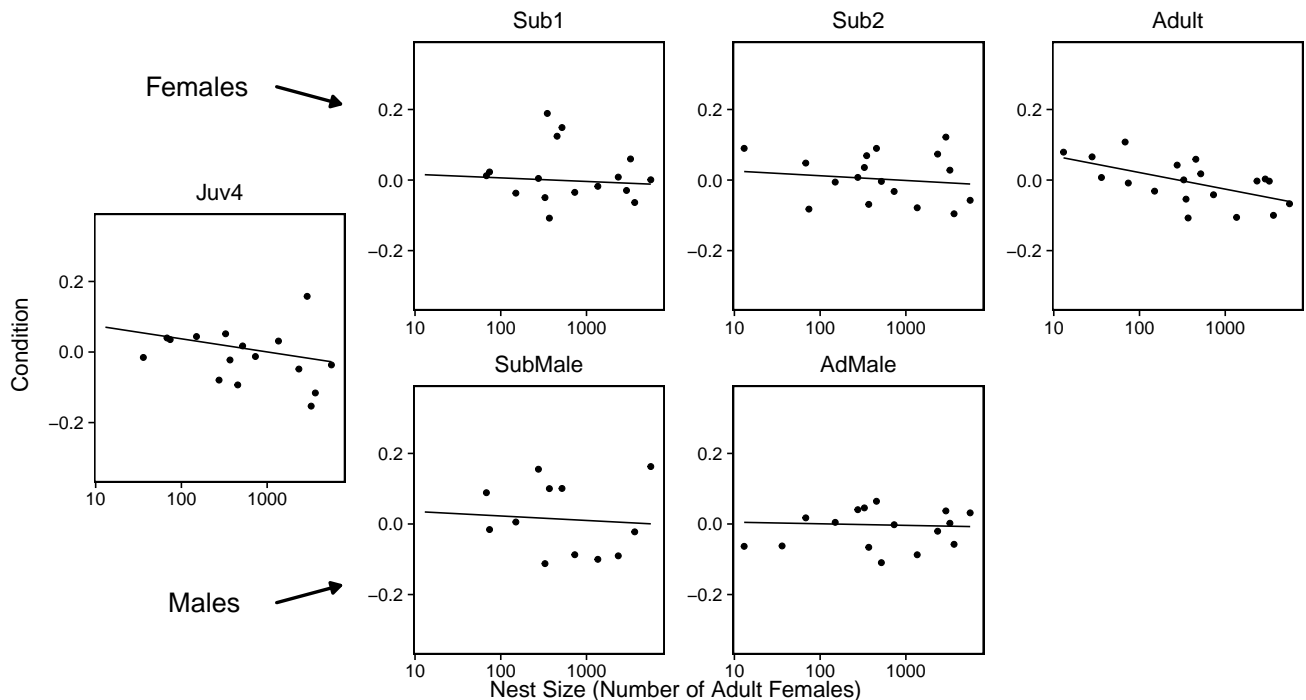
AIC_Diff	AIC	model	num.predictors
0	-2082	condResiduals ~ logCtFm:Instar + Instar + (1 NestID)	14
0	-2082	condResiduals ~ logCtFm + logCtFm:Instar + Instar + (1 NestID)	14
1.48	-2081	condResiduals ~ I(logCtFm^2) + I(logCtFm^2):Instar + Instar + (1 NestID)	14
2	-2080	condResiduals ~ logCtFm + logCtFm:Instar + I(logCtFm^2) + Instar + (1 NestID)	15
2.32	-2080	condResiduals ~ logCtFm + Instar + (1 NestID)	9
2.68	-2080	condResiduals ~ I(logCtFm^2) + Instar + (1 NestID)	9
3.32	-2079	condResiduals ~ logCtFm + I(logCtFm^2) + I(logCtFm^2):Instar + Instar + (1 NestID)	15
4.18	-2078	condResiduals ~ logCtFm + I(logCtFm^2) + Instar + (1 NestID)	10
5.78	-2077	condResiduals ~ logCtFm + logCtFm:Instar + I(logCtFm^2) + I(logCtFm^2):Instar + Instar + (1 NestID)	20

Graph with lowest AIC model superimposed

Model:

`condResiduals ~ logCtFm + Instar + logCtFm:Instar + (1 | NestID)`

Note: If line on graph is blue R could not plot the lmer, plotting a simple lm instead



Statistics using model without squared values as the full model (Lowest AIC Model)

Anova of full model alone

-Model: $\text{condResiduals} \sim \text{logCtFm} + \text{Instar} + \text{logCtFm:Instar} + (1 \mid \text{NestID})$

Warning in `summary.merMod(model, ddf = "lme4")`: additional arguments ignored

	Sum Sq	Mean Sq	NumDF	DenDF	F.value	Pr(>F)
logCtFm	0.0208669	0.0208669	1	28.25243	1.953322	0.1731083
Instar	0.1043647	0.0208729	5	1254.22781	1.953886	0.0828471
logCtFm:Instar	0.1322852	0.0264570	5	1257.28072	2.476605	0.0304493

—Testing Individual Variables, (Anova of full vs reduced model)—

Testing Nest Size

-Full Model: $\text{condResiduals} \sim \text{logCtFm} + \text{Instar} + \text{logCtFm:Instar} + (1 \mid \text{NestID})$

-Reduced Model: $\text{condResiduals} \sim \text{Instar} + (1 \mid \text{NestID})$

	Df	AIC	BIC	logLik	deviance	Chisq	Chi Df	Pr(>Chisq)
..1	8	-2077.240	-2036.085	1046.620	-2093.240	NA	NA	NA
object	14	-2082.374	-2010.352	1055.187	-2110.374	17.13343	6	0.0088052

Testing Instar Term

-Full Model: $\text{condResiduals} \sim \text{logCtFm} + \text{Instar} + \text{logCtFm:Instar} + (1 \mid \text{NestID})$

-Reduced Model: $\text{condResiduals} \sim \text{logCtFm} + (1 \mid \text{NestID})$

	Df	AIC	BIC	logLik	deviance	Chisq	Chi Df	Pr(>Chisq)
..1	4	-2081.925	-2061.348	1044.963	-2089.925	NA	NA	NA
object	14	-2082.374	-2010.352	1055.187	-2110.374	20.44849	10	0.025285

Testing Interaction Term

-Full Model: $\text{condResiduals} \sim \text{logCtFm} + \text{Instar} + \text{logCtFm:Instar} + (1 \mid \text{NestID})$

-Reduced Model: $\text{condResiduals} \sim \text{logCtFm} + \text{Instar} + (1 \mid \text{NestID})$

	Df	AIC	BIC	logLik	deviance	Chisq	Chi Df	Pr(>Chisq)
..1	9	-2080.052	-2033.753	1049.026	-2098.052	NA	NA	NA
object	14	-2082.374	-2010.352	1055.187	-2110.374	12.32168	5	0.0306363

Testing Individual Instars

As the interaction is significant testing instar individually

note: pops up saying ‘refitting model(s) with ML (instead of REML)’ but if make anova refit = FALSE results don’t make sense

Adult

	Df	AIC	BIC	logLik	deviance	Chisq	Chi Df	Pr(>Chisq)
..1	3	-764.8555	-753.1558	385.4278	-770.8555	NA	NA	NA
object	4	-770.4985	-754.8989	389.2492	-778.4985	7.642948	1	0.0056995

Sub2

	Df	AIC	BIC	logLik	deviance	Chisq	Chi Df	Pr(>Chisq)
..1	3	-346.0882	-335.5359	176.0441	-352.0882	NA	NA	NA
object	4	-344.5367	-330.4669	176.2683	-352.5367	0.4484218	1	0.5030854

Sub1

	Df	AIC	BIC	logLik	deviance	Chisq	Chi Df	Pr(>Chisq)
..1	3	-415.8428	-404.9064	210.9214	-421.8428	NA	NA	NA
object	4	-413.9760	-399.3942	210.9880	-421.9760	0.133194	1	0.7151432

Juv4

	Df	AIC	BIC	logLik	deviance	Chisq	Chi Df	Pr(>Chisq)
..1	3	-338.6935	-328.3403	172.3467	-344.6935	NA	NA	NA
object	4	-337.8281	-324.0239	172.9140	-345.8281	1.134603	1	0.2867956

AdMale

	Df	AIC	BIC	logLik	deviance	Chisq	Chi Df	Pr(>Chisq)
..1	3	-293.6775	-285.7156	149.8387	-299.6775	NA	NA	NA
object	4	-291.8605	-281.2447	149.9303	-299.8605	0.1830181	1	0.6687923

SubMale

	Df	AIC	BIC	logLik	deviance	Chisq	Chi Df	Pr(>Chisq)
..1	3	-43.29431	-38.89711	24.64716	-49.29431	NA	NA	NA
object	4	-41.88070	-36.01776	24.94035	-49.88070	0.5863867	1	0.4438198