Individual Condition vs Nest Size

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AIC Values of all possible models with instar always included

note: InstarNumber is a numeric value denoting age

AIC_Diff	AIC	model	num.predictors
0	-2084	condResiduals ~ logCtFm + InstarSex:logCtFm + InstarNumber + InstarSex + (1|NestID)	7
0.19	-2084	condResiduals ~ logCtFm + InstarNumber + InstarSex + (1|NestID)	6
0.74	-2083	condResiduals ~ logCtFm + logCtFm:InstarNumber + InstarSex:logCtFm + InstarNumber + InstarSex + (1|NestID)	8
0.98	-2083	condResiduals ~ logCtFm + logCtFm:InstarNumber + InstarNumber + InstarSex + (1|NestID)	7
1.75	-2082	condResiduals ~ logCtFm + InstarSex:InstarNumber + InstarSex:logCtFm + InstarNumber + InstarSex + (1|NestID)	8
2.05	-2082	condResiduals ~ logCtFm + InstarSex:InstarNumber + InstarNumber + InstarSex + (1|NestID)	7
2.47	-2082	condResiduals ~ logCtFm + logCtFm:InstarNumber + InstarSex:InstarNumber + InstarSex:logCtFm + InstarNumber + InstarSex + (1|NestID)	9
2.83	-2081	condResiduals ~ logCtFm + logCtFm:InstarNumber + InstarSex:InstarNumber + InstarNumber + InstarSex + (1|NestID)	8
3.63	-2080	condResiduals ~ logCtFm:InstarNumber + InstarNumber + InstarSex + (1|NestID)	6
3.79	-2080	condResiduals ~ logCtFm:InstarNumber + InstarSex:logCtFm + InstarNumber + InstarSex + (1|NestID)	7
4.7	-2079	condResiduals ~ InstarSex:InstarNumber + InstarNumber + InstarSex + (1|NestID)	6
5.49	-2079	condResiduals ~ logCtFm:InstarNumber + InstarSex:InstarNumber + InstarNumber + InstarSex + (1|NestID)	7
5.54	-2079	condResiduals ~ logCtFm:InstarNumber + InstarSex:InstarNumber + InstarSex:logCtFm + InstarNumber + InstarSex + (1|NestID)	8

Graph with lowest AIC model superimposed

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Model:
condResiduals ~ logCtFm + InstarNumber + InstarSex + logCtFm:InstarSex + (1 | NestID)
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[1] "could not draw lmer line on graph, normal lm instead"
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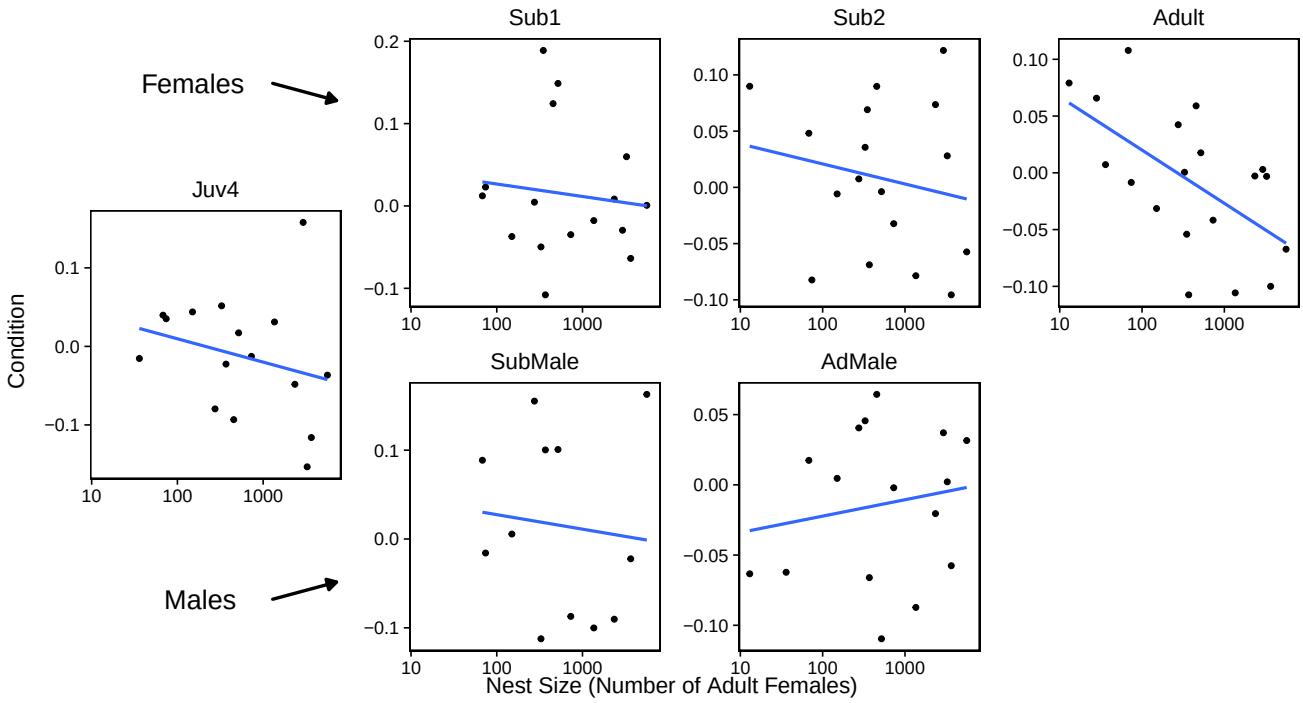
Females
Males
Juv4
Sub1
Sub2
Adult
SubMale
AdMale
Condition
Nest Size (Number of Adult Females)

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

Anova of full model alone

-Model: condResiduals ~ logCtFm + Instar + logCtFm:Instar + (1 | NestID)

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

-Reduced Model: condResiduals ~ Instar + (1 | 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: condResiduals ~ logCtFm + Instar + logCtFm:Instar + (1 | NestID)

-Reduced Model: condResiduals ~ logCtFm + (1 | 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: condResiduals ~ logCtFm + Instar + logCtFm:Instar + (1 | NestID)

-Reduced Model: condResiduals ~ logCtFm + Instar + (1 | 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