Individual Condition vs Nest Size

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AIC Values of all possible models with instar always included

AIC_Diff	AIC	model	num.predictors
0	-2073	condResiduals ~ logCtFm + logCtFm:Instar + Instar + (1|NestID)	14
1.91	-2071	condResiduals ~ I(logCtFmˆ2) + I(logCtFmˆ2):Instar + Instar + (1|NestID)	14
2	-2071	condResiduals ~ logCtFm + logCtFm:Instar + I(logCtFmˆ2) + Instar + (1|NestID)	15
3.33	-2070	condResiduals ~ logCtFm + logCtFm:Instar + I(logCtFmˆ2) + I(logCtFmˆ2):Instar + Instar + (1|NestID)	20
3.5	-2070	condResiduals ~ logCtFm + Instar + (1|NestID)	9
3.74	-2070	condResiduals ~ logCtFm + I(logCtFmˆ2) + I(logCtFmˆ2):Instar + Instar + (1|NestID)	15
3.94	-2069	condResiduals ~ I(logCtFmˆ2) + Instar + (1|NestID)	9
5.34	-2068	condResiduals ~ logCtFm + I(logCtFmˆ2) + Instar + (1|NestID)	10

Graph with lowest AIC model superimposed

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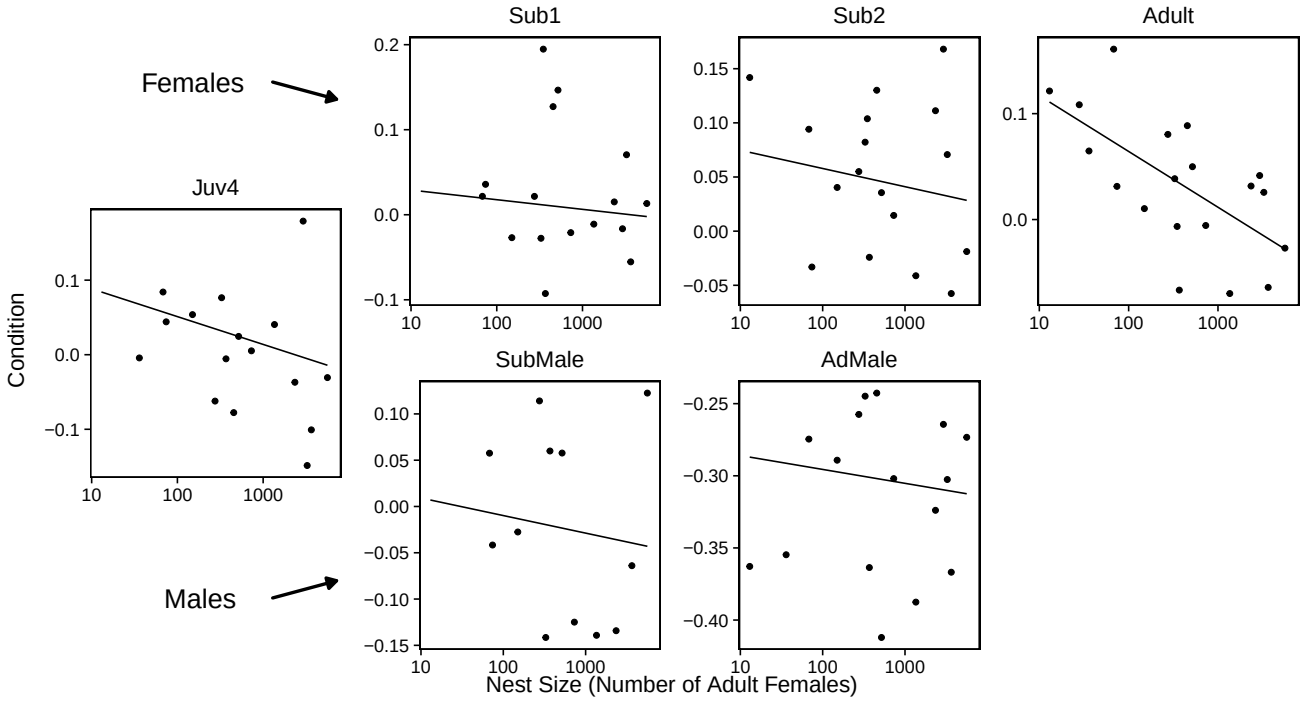
Model:
condResiduals ~ logCtFm + Instar + logCtFm:Instar + (1 | NestID)
```



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
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	Sum Sq	Mean Sq	NumDF	DenDF	F.value	Pr(>F)
logCtFm	0.0298387	0.0298387	1	28.7514	2.771453	0.1068212
Instar	0.8500548	0.1700110	5	1253.5910	15.790817	0.0000000
logCtFm:Instar	0.1461235	0.0292247	5	1257.0520	2.714425	0.0189986

—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	-2065.778	-2024.622	1040.889	-2081.778	NA	NA	NA
object	14	-2073.303	-2001.282	1050.652	-2101.303	19.5259	6	0.0033618

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	-1372.748	-1352.170	690.3739	-1380.748	NA	NA	NA
object	14	-2073.303	-2001.282	1050.6517	-2101.303	720.5555	10	0

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	-2069.804	-2023.504	1043.902	-2087.804	NA	NA	NA
object	14	-2073.303	-2001.282	1050.652	-2101.303	13.49947	5	0.0191218

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	-764.6438	-752.9441	385.3219	-770.6438	NA	NA	NA
object	4	-772.1209	-756.5213	390.0604	-780.1209	9.477042	1	0.0020806

Sub2

	Df	AIC	BIC	logLik	deviance	Chisq	Chi Df	Pr(>Chisq)
..1	3	-345.2238	-334.6714	175.6119	-351.2238	NA	NA	NA
object	4	-343.9252	-329.8554	175.9626	-351.9252	0.7014559	1	0.4022949

Sub1

	Df	AIC	BIC	logLik	deviance	Chisq	Chi Df	Pr(>Chisq)
..1	3	-414.7289	-403.7926	210.3645	-420.7289	NA	NA	NA
object	4	-412.9099	-398.3282	210.4550	-420.9099	0.1809981	1	0.6705169

Juv4

	Df	AIC	BIC	logLik	deviance	Chisq	Chi Df	Pr(>Chisq)
..1	3	-330.0751	-319.7220	168.0376	-336.0751	NA	NA	NA
object	4	-329.3926	-315.5884	168.6963	-337.3926	1.317426	1	0.2510546

AdMale

	Df	AIC	BIC	logLik	deviance	Chisq	Chi Df	Pr(>Chisq)
..1	3	-292.8155	-284.8536	149.4077	-298.8155	NA	NA	NA
object	4	-290.8265	-280.2106	149.4132	-298.8265	0.010972	1	0.9165762

SubMale

	Df	AIC	BIC	logLik	deviance	Chisq	Chi Df	Pr(>Chisq)
..1	3	-44.91714	-40.51993	25.45857	-50.91714	NA	NA	NA
object	4	-43.79725	-37.93431	25.89863	-51.79725	0.8801109	1	0.3481713