

Analysis of Variance with PROC MIXED
This model assumes homogeneity

The Mixed Procedure

Model Information

Data Set	WORK.CUCKOO
Dependent Variable	EggLt
Covariance Structure	Diagonal
Estimation Method	REML
Residual Variance Method	Profile
Fixed Effects SE Method	Model-Based
Degrees of Freedom Method	Residual

Class Level Information

Class	Levels	Values
hostspecies	6	Hedge Sparrow Meadow Pipit Pied Wagtail Robin Tree Pipit Wren

Dimensions

Covariance Parameters	1
Columns in X	7
Columns in Z	0
Subjects	1
Max Obs Per Subject	120

Number of Observations

Number of Observations Read	120
Number of Observations Used	120
Number of Observations Not Used	0

Covariance Parameter Estimates

Cov Parm	Estimate	Standard Error	Z Value	Pr > Z	Alpha	Lower	Upper
Residual	0.8267	0.1095	7.55	<.0001	0.05	0.6480	1.0916

Fit Statistics

-2 Res Log Likelihood	319.2
AIC (smaller is better)	321.2
AICC (smaller is better)	321.2
BIC (smaller is better)	323.9

Type 3 Tests of Fixed Effects

Effect	Num DF	Den DF	F Value	Pr > F
hostspecies	5	114	10.39	<.0001

Contrasts

Label	Num DF	Den DF	F Value	Pr > F
Pipits v others	1	114	2.13	0.1469
Wren v others	1	114	43.00	<.0001

Least Squares Means

Effect	hostspecies	Estimate	Standard Error	DF	t Value	Pr > t	Alpha	Lower	Upper
hostspecies	Hedge Sparrow	23.1214	0.2430	114	95.15	<.0001	0.05	22.6400	23.6028
hostspecies	Meadow Pipit	22.2989	0.1355	114	164.51	<.0001	0.05	22.0304	22.5674
hostspecies	Pied Wagtail	22.9033	0.2348	114	97.56	<.0001	0.05	22.4383	23.3684
hostspecies	Robin	22.5750	0.2273	114	99.31	<.0001	0.05	22.1247	23.0253
hostspecies	Tree Pipit	23.0900	0.2348	114	98.35	<.0001	0.05	22.6249	23.5551
hostspecies	Wren	21.1300	0.2348	114	90.00	<.0001	0.05	20.6649	21.5951
hostspecies	Hedge Sparrow	23.1214	0.2430	114	95.15	<.0001	.	.	.
hostspecies	Meadow Pipit	22.2989	0.1355	114	164.51	<.0001	.	.	.
hostspecies	Pied Wagtail	22.9033	0.2348	114	97.56	<.0001	.	.	.
hostspecies	Robin	22.5750	0.2273	114	99.31	<.0001	.	.	.
hostspecies	Tree Pipit	23.0900	0.2348	114	98.35	<.0001	.	.	.
hostspecies	Wren	21.1300	0.2348	114	90.00	<.0001	.	.	.
hostspecies	Hedge Sparrow	23.1214	0.2430	114	95.15	<.0001	.	.	.
hostspecies	Meadow Pipit	22.2989	0.1355	114	164.51	<.0001	.	.	.
hostspecies	Pied Wagtail	22.9033	0.2348	114	97.56	<.0001	.	.	.
hostspecies	Robin	22.5750	0.2273	114	99.31	<.0001	.	.	.
hostspecies	Tree Pipit	23.0900	0.2348	114	98.35	<.0001	.	.	.
hostspecies	Wren	21.1300	0.2348	114	90.00	<.0001	.	.	.

Differences of Least Squares Means

Effect	hosts	species	Estimate	Standard Error	DF	t Value	Pr > t	Adjustment	Adj P
hosts	Hedge Sparrow	Meadow Pipit	0.8225	0.2783	114	2.96	0.0038	Tukey-Kramer	0.0429
hosts	Hedge Sparrow	Pied Wagtail	0.2181	0.3379	114	0.65	0.5199	Tukey-Kramer	0.9872
hosts	Hedge Sparrow	Robin	0.5464	0.3328	114	1.64	0.1033	Tukey-Kramer	0.5726
hosts	Hedge Sparrow	Tree Pipit	0.03143	0.3379	114	0.09	0.9261	Tukey-Kramer	1.0000
hosts	Hedge Sparrow	Wren	1.9914	0.3379	114	5.89	<.0001	Tukey-Kramer	<.0001
hosts	Meadow Pipit	Pied Wagtail	-0.6044	0.2711	114	-2.23	0.0277	Tukey-Kramer	0.2325
hosts	Meadow Pipit	Robin	-0.2761	0.2647	114	-1.04	0.2990	Tukey-Kramer	0.9022
hosts	Meadow Pipit	Tree Pipit	-0.7911	0.2711	114	-2.92	0.0042	Tukey-Kramer	0.0475
hosts	Meadow Pipit	Wren	1.1689	0.2711	114	4.31	<.0001	Tukey-Kramer	0.0005
hosts	Pied Wagtail	Robin	0.3283	0.3268	114	1.00	0.3171	Tukey-Kramer	0.9155
hosts	Pied Wagtail	Tree Pipit	-0.1867	0.3320	114	-0.56	0.5751	Tukey-Kramer	0.9932
hosts	Pied Wagtail	Wren	1.7733	0.3320	114	5.34	<.0001	Tukey-Kramer	<.0001
hosts	Robin	Tree Pipit	-0.5150	0.3268	114	-1.58	0.1178	Tukey-Kramer	0.6160
hosts	Robin	Wren	1.4450	0.3268	114	4.42	<.0001	Tukey-Kramer	0.0003
hosts	Tree Pipit	Wren	1.9600	0.3320	114	5.90	<.0001	Tukey-Kramer	<.0001
hosts	Hedge Sparrow	Meadow Pipit	0.8225	0.2783	114	2.96	0.0038	Scheffe	0.1294
hosts	Hedge Sparrow	Pied Wagtail	0.2181	0.3379	114	0.65	0.5199	Scheffe	0.9947
hosts	Hedge Sparrow	Robin	0.5464	0.3328	114	1.64	0.1033	Scheffe	0.7461
hosts	Hedge Sparrow	Tree Pipit	0.03143	0.3379	114	0.09	0.9261	Scheffe	1.0000
hosts	Hedge Sparrow	Wren	1.9914	0.3379	114	5.89	<.0001	Scheffe	<.0001
hosts	Meadow Pipit	Pied Wagtail	-0.6044	0.2711	114	-2.23	0.0277	Scheffe	0.4245
hosts	Meadow Pipit	Robin	-0.2761	0.2647	114	-1.04	0.2990	Scheffe	0.9543
hosts	Meadow Pipit	Tree Pipit	-0.7911	0.2711	114	-2.92	0.0042	Scheffe	0.1394
hosts	Meadow Pipit	Wren	1.1689	0.2711	114	4.31	<.0001	Scheffe	0.0037
hosts	Pied Wagtail	Robin	0.3283	0.3268	114	1.00	0.3171	Scheffe	0.9611
hosts	Pied Wagtail	Tree Pipit	-0.1867	0.3320	114	-0.56	0.5751	Scheffe	0.9973
hosts	Pied Wagtail	Wren	1.7733	0.3320	114	5.34	<.0001	Scheffe	<.0001
hosts	Robin	Tree Pipit	-0.5150	0.3268	114	-1.58	0.1178	Scheffe	0.7781
hosts	Robin	Wren	1.4450	0.3268	114	4.42	<.0001	Scheffe	0.0026
hosts	Tree Pipit	Wren	1.9600	0.3320	114	5.90	<.0001	Scheffe	<.0001

hostspecies	Hedge Sparrow	Meadow Pipit	0.8225	0.2783	114	2.96	0.0038	Bonferroni	0.0568
hostspecies	Hedge Sparrow	Pied Wagtail	0.2181	0.3379	114	0.65	0.5199	Bonferroni	1.0000
hostspecies	Hedge Sparrow	Robin	0.5464	0.3328	114	1.64	0.1033	Bonferroni	1.0000
hostspecies	Hedge Sparrow	Tree Pipit	0.03143	0.3379	114	0.09	0.9261	Bonferroni	1.0000
hostspecies	Hedge Sparrow	Wren	1.9914	0.3379	114	5.89	<.0001	Bonferroni	<.0001
hostspecies	Meadow Pipit	Pied Wagtail	-0.6044	0.2711	114	-2.23	0.0277	Bonferroni	0.4159
hostspecies	Meadow Pipit	Robin	-0.2761	0.2647	114	-1.04	0.2990	Bonferroni	1.0000
hostspecies	Meadow Pipit	Tree Pipit	-0.7911	0.2711	114	-2.92	0.0042	Bonferroni	0.0636
hostspecies	Meadow Pipit	Wren	1.1689	0.2711	114	4.31	<.0001	Bonferroni	0.0005
hostspecies	Pied Wagtail	Robin	0.3283	0.3268	114	1.00	0.3171	Bonferroni	1.0000
hostspecies	Pied Wagtail	Tree Pipit	-0.1867	0.3320	114	-0.56	0.5751	Bonferroni	1.0000
hostspecies	Pied Wagtail	Wren	1.7733	0.3320	114	5.34	<.0001	Bonferroni	<.0001
hostspecies	Robin	Tree Pipit	-0.5150	0.3268	114	-1.58	0.1178	Bonferroni	1.0000
hostspecies	Robin	Wren	1.4450	0.3268	114	4.42	<.0001	Bonferroni	0.0003
hostspecies	Tree Pipit	Wren	1.9600	0.3320	114	5.90	<.0001	Bonferroni	<.0001

Differences ofLeast Squares Means

Effect	hostspecies	_hostspecies	Alpha	Lower	Upper	Adj Lower	Adj Upper
hostspecies	Hedge Sparrow	Meadow Pipit	0.05	0.2713	1.3738	0.01595	1.6291
hostspecies	Hedge Sparrow	Pied Wagtail	0.05	-0.4513	0.8875	-0.7614	1.1976
hostspecies	Hedge Sparrow	Robin	0.05	-0.1128	1.2056	-0.4181	1.5110
hostspecies	Hedge Sparrow	Tree Pipit	0.05	-0.6379	0.7008	-0.9480	1.0109
hostspecies	Hedge Sparrow	Wren	0.05	1.3221	2.6608	1.0120	2.9709
hostspecies	Meadow Pipit	Pied Wagtail	0.05	-1.1415	-0.06742	-1.3903	0.1814
hostspecies	Meadow Pipit	Robin	0.05	-0.8004	0.2482	-1.0433	0.4911
hostspecies	Meadow Pipit	Tree Pipit	0.05	-1.3281	-0.2541	-1.5769	-0.00529
hostspecies	Meadow Pipit	Wren	0.05	0.6319	1.7059	0.3831	1.9547
hostspecies	Pied Wagtail	Robin	0.05	-0.3190	0.9757	-0.6189	1.2756
hostspecies	Pied Wagtail	Tree Pipit	0.05	-0.8444	0.4710	-1.1491	0.7758
hostspecies	Pied Wagtail	Wren	0.05	1.1156	2.4310	0.8109	2.7358
hostspecies	Robin	Tree Pipit	0.05	-1.1624	0.1324	-1.4623	0.4323
hostspecies	Robin	Wren	0.05	0.7976	2.0924	0.4977	2.3923
hostspecies	Tree Pipit	Wren	0.05	1.3023	2.6177	0.9976	2.9224

Analysis of Variance with PROC MIXED
 This model assumes homogeneity
 Post hoc adjustment with macro by Arnold Saxton

Effect=hostspecies Method=Bonferroni(P<0.05) Set=3

Obs	hostspecies	Estimate	Standard Error	Alpha	Lower	Upper	Letter Group
1	Hedge Sparrow	23.1214	0.2430	.	.	.	A
2	Tree Pipit	23.0900	0.2348	.	.	.	A
3	Pied Wagtail	22.9033	0.2348	.	.	.	A
4	Robin	22.5750	0.2273	.	.	.	A
5	Meadow Pipit	22.2989	0.1355	.	.	.	A
6	Wren	21.1300	0.2348	.	.	.	B

Effect=hostspecies Method=Scheffe(P<0.05) Set=2

Obs	hostspecies	Estimate	Standard Error	Alpha	Lower	Upper	Letter Group
7	Hedge Sparrow	23.1214	0.2430	.	.	.	A
8	Tree Pipit	23.0900	0.2348	.	.	.	A
9	Pied Wagtail	22.9033	0.2348	.	.	.	A
10	Robin	22.5750	0.2273	.	.	.	A
11	Meadow Pipit	22.2989	0.1355	.	.	.	A
12	Wren	21.1300	0.2348	.	.	.	B

Effect=hostspecies Method=Tukey-Kramer(P<0.05) Set=1

Obs	hostspecies	Estimate	Standard Error	Alpha	Lower	Upper	Letter Group
13	Hedge Sparrow	23.1214	0.2430	0.05	22.6400	23.6028	A
14	Tree Pipit	23.0900	0.2348	0.05	22.6249	23.5551	A
15	Pied Wagtail	22.9033	0.2348	0.05	22.4383	23.3684	AB
16	Robin	22.5750	0.2273	0.05	22.1247	23.0253	AB
17	Meadow Pipit	22.2989	0.1355	0.05	22.0304	22.5674	B
18	Wren	21.1300	0.2348	0.05	20.6649	21.5951	C