

The package contains three functions that clean the data of any unwanted experiments. Firstly, data containing trials of the species White-rumped shama and Zebra dove are removed due to low sampling effort. Secondly, data containing trials not equal to 15 minutes are removed due to low sampling effort. Lastly, a generalized linear mixed model is applied to the data.

```
> library(CAXA)
> library(lme4)
> library(dplyr)
> data("cax_data")
> ## Remove all experiments with wrsh or zedo as track species
> cax_data_1 <- Remove.WRSH.ZEDO(cax_data)

# A tibble: 573 x 12
# Groups:   experiment [73]
  experiment track.order track.spp track.type track.length breeding.season
  <fctr>      <fctr>      <chr>      <chr>      <int>      <int>
1         1         1      control      con         15         1
2         1         2      control      con         15         1
3         1         3      control      con         15         1
4         1         4      control      con         15         1
5         1         5      rvbu      treat         60         1
6         2         1      control      con         15         1
7         2         2      control      con         15         1
8         2         3      control      con         15         1
9         2         4      control      con         15         1
10        2         5      jawe      treat         15         1
# ... with 563 more rows, and 6 more variables: native.plant <int>, jawe <int>,
#   rble <int>, rvbu <int>, rwbu <int>, other <int>

> ## Keep only experiments with all trials of track lengths equal to 15 minutes
> cax_data_2 <- Keep.15.Tracks(cax_data_1)

# A tibble: 448 x 12
# Groups:   experiment [56]
  experiment track.order track.spp track.type track.length breeding.season
  <fctr>      <fctr>      <chr>      <chr>      <int>      <int>
1         13         1      control      con         15         0
2         13         2      control      con         15         0
3         13         3      control      con         15         0
4         13         4      control      con         15         0
5         13         5      rvbu      treat         15         0
6         13         6 jawe.rble      treat         15         0
7         13         7      rwbu      treat         15         0
8         13         8      rble      treat         15         0
9         15         1      control      con         15         0
10        15         2      control      con         15         0
```

```
# ... with 438 more rows, and 6 more variables: native.plant <int>, jawe <int>,
#   rble <int>, rvbu <int>, rwbu <int>, other <int>

> ## Apply a generalized linear mixed model with a binomial distribution
> ## For each glmm have bird species as response variable; track species, breeding season, a
> GLMM.Bin(cax_data_2)
```

```
Generalized linear mixed model fit by maximum likelihood (Laplace
Approximation) [glmerMod]
Family: binomial ( logit )
Formula:
species ~ track.spp + breeding.season + native.plant + (1 | track.order)
Data: cax_data_2
```

AIC	BIC	logLik	deviance	df.resid
498	535	-240	480	439

Scaled residuals:

Min	1Q	Median	3Q	Max
-2.3400	-0.5263	-0.4832	0.4631	2.1722

Random effects:

Groups	Name	Variance	Std.Dev.
track.order	(Intercept)	0.01191	0.1091

Number of obs: 448, groups: track.order, 8

Fixed effects:

	Estimate	Std. Error	z value	Pr(> z)
(Intercept)	-1.2871	0.2805	-4.589	4.46e-06 ***
track.sppjawe	2.9869	0.4133	7.226	4.96e-13 ***
track.sppjawe.rble	3.0937	0.6680	4.632	3.63e-06 ***
track.spprble	1.2887	0.3783	3.407	0.000658 ***
track.spprvbu	1.1971	0.3240	3.695	0.000220 ***
track.spprwbu	0.2429	0.3705	0.656	0.511997
breeding.season	-0.1335	0.2302	-0.580	0.562028
native.plant	-0.0773	0.2610	-0.296	0.767146

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Correlation of Fixed Effects:

	(Intr)	trck.sppj	trck..	trck.spprb	trck.spprv	trck.spprw	brdng.
track.sppjw	-0.212						
trck.sppjw.	-0.275	0.106					
trck.spprbl	-0.257	0.217	0.143				
trck.spprvb	-0.334	0.261	0.147	0.271			
trck.spprwb	-0.316	0.217	0.155	0.260	0.278		

breedng.ssn	-0.353	-0.063	0.137	-0.074	-0.016	0.012	
native.plnt	-0.655	-0.044	0.062	-0.027	-0.001	0.005	-0.084