

# EEB313 Final Assingment: Elisabeth Atkinson

2023-11-02

```
#Read Data
```

```
rubalcaba<- read.csv2("dataset_Rubalcaba_Polo.csv")
```

```
head(rubalcaba)
```

```
##      Mother Treatment Year Clutch      Date Nest Eggs Hatchlings Fledglings
## 1 3296489          LD 2015         1 14/04/2015  42    3           3           3
## 2   A703          LD 2015         1 08/04/2015   8    5           5           5
## 3   C038          LD 2015         1 08/04/2015  11    4           3           3
## 4   C141          LD 2015         1 28/05/2015  20    4           4           4
## 5   C524          LD 2015         1 05/04/2015  25    5           4           4
## 6   C663          LD 2015         1 07/04/2015  24    5           5           5
##      Males Females
## 1      1        2
## 2      4        1
## 3      1        2
## 4      2        2
## 5      3        1
## 6      3        2

##      [1] 1.0000000 1.0000000 0.7500000 1.0000000 0.8000000 1.0000000 0.8000000
##      [8] 0.4000000 1.0000000 0.6666667 1.0000000 1.0000000 1.0000000 1.0000000
##     [15] 1.0000000 1.0000000 0.5000000 1.0000000 0.7500000 0.6000000 1.0000000
##     [22] 0.7500000 0.6000000 1.0000000 0.8333333 1.0000000 0.7500000 1.0000000
##     [29] 1.0000000 0.8000000 1.0000000 1.0000000 0.8000000 1.0000000 1.0000000
##     [36] 0.8000000 0.8000000 1.0000000 0.8000000 1.0000000 0.8000000 0.6000000
##     [43] 0.7500000 0.8000000 1.0000000 0.6000000 1.0000000 0.8000000 1.0000000
##     [50] 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 0.8000000
##     [57] 0.6666667 1.0000000 1.0000000 0.5000000 0.8000000 0.8000000 0.6000000
##     [64] 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000 0.7500000 0.3333333
##     [71] 1.0000000 1.0000000 1.0000000 0.6000000 0.8000000 0.2500000 1.0000000
##     [78] 1.0000000 0.6666667 0.6666667 1.0000000 0.0000000 0.7500000 0.8000000
##     [85] 0.0000000 0.8000000 1.0000000 1.0000000 0.8000000 1.0000000 1.0000000
##     [92] 0.6000000 0.8333333 1.0000000 0.4000000 1.0000000 0.8333333 0.6000000
##     [99] 1.0000000 1.0000000 1.0000000 0.8000000 0.2000000 1.0000000 0.8000000
##    [106] 0.0000000 0.4000000 0.5000000 1.0000000 1.0000000 0.2500000 1.0000000
##    [113] 1.0000000 1.0000000 1.0000000 0.6000000 1.0000000 1.0000000 0.4000000
##    [120] 0.8000000 0.6666667 1.0000000 1.0000000 0.5000000 1.0000000 0.2000000
##    [127] 1.0000000 0.4000000 0.6000000 1.0000000 0.8000000 1.0000000 0.6666667
##    [134] 1.0000000 0.8000000 1.0000000 0.6000000 0.6000000 0.4000000 0.7500000
##    [141] 1.0000000 0.0000000 1.0000000 1.0000000 0.7500000 0.8000000 0.0000000
##    [148] 0.4000000 0.8000000 1.0000000 0.8000000 1.0000000 0.7500000 1.0000000
##    [155] 1.0000000 1.0000000 1.0000000 1.0000000 0.7500000 1.0000000 0.7500000
##    [162] 0.8000000 0.8000000 0.0000000 0.6666667 0.8000000 0.6000000 0.0000000
##    [169] 0.7500000 1.0000000 0.6666667 1.0000000 1.0000000 0.7500000 0.2000000
##    [176] 1.0000000 0.6666667 1.0000000 1.0000000 1.0000000 1.0000000 1.0000000
##    [183] 0.7500000 1.0000000 0.6000000 0.5000000 0.6000000 0.8000000 0.6000000
```

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## [190] 1.0000000 1.0000000 1.0000000 0.0000000 1.0000000 1.0000000 0.8000000
## [197] 0.8333333 0.6000000 0.2500000 1.0000000 1.0000000 0.6000000 0.7500000
## [204] 1.0000000 0.5000000 0.6000000 0.7500000 0.6666667 1.0000000 0.5000000

## [1] 846
## [1] 196
## [1] 0.5130024
## [1] 0.4869976
## [1] 0.2316785
## [1] 0.4516129
## [1] 0.4757282

##      Mother Treatment Year Clutch      Date Nest Eggs Hatchlings Fledglings
## 1 3296489          LD 2015         1 14/04/2015  42   3           3           3
## 2   A703          LD 2015         1 08/04/2015   8   5           5           5
## 3   C038          LD 2015         1 08/04/2015  11   4           3           3
## 4   C141          LD 2015         1 28/05/2015  20   4           4           4
## 5   C524          LD 2015         1 05/04/2015  25   5           4           4
## 6   C663          LD 2015         1 07/04/2015  24   5           5           5
##      Males Females deaths H2Fdeaths E2Hdeaths hatchsurvivalrate survivalrate
## 1      1         2      0          0          0              1.00          1.00
## 2      4         1      0          0          0              1.00          1.00
## 3      1         2      1          0          1              0.75          0.75
## 4      2         2      0          0          0              1.00          1.00
## 5      3         1      1          0          1              0.80          0.80
## 6      3         2      0          0          0              1.00          1.00
##      femaleratio femaledeaths
## 1  2.0000000  0.0000000
## 2  0.2500000  0.0000000
## 3  2.0000000  2.0000000
## 4  1.0000000  0.0000000
## 5  0.3333333  0.3333333
## 6  0.6666667  0.0000000

```

```

#Visualize the Data
rubalcaba

```

```

##      Mother Treatment Year Clutch      Date Nest Eggs Hatchlings Fledglings
## 1 3296489          LD 2015         1 14/04/2015  42   3           3           3
## 2   A703          LD 2015         1 08/04/2015   8   5           5           5
## 3   C038          LD 2015         1 08/04/2015  11   4           3           3
## 4   C141          LD 2015         1 28/05/2015  20   4           4           4
## 5   C524          LD 2015         1 05/04/2015  25   5           4           4
## 6   C663          LD 2015         1 07/04/2015  24   5           5           5
## 7   C699          LD 2015         1 12/05/2015  33   5           4           4
## 8   C708          LD 2015         1 08/04/2015  34   5           2           2
## 9   C723          LD 2015         1 10/04/2015  39   4           4           4
## 10  C853          LD 2015         1 08/04/2015  38   3           2           2
## 11  E013          LD 2015         1 19/04/2015  36   3           3           3
## 12  E117          LD 2015         1 08/04/2015  26   4           4           4
## 13  E152          LD 2015         1 07/04/2015  21   4           4           4

```

## 14	E201	LD 2015	1 07/04/2015	23	4	4	4
## 15	E209	LD 2015	1 15/04/2015	37	5	5	5
## 16	G114	LD 2015	1 07/04/2015	7	4	4	4
## 17	G118	LD 2015	1 03/06/2015	36	4	3	2
## 18	G224	LD 2015	1 07/04/2015	41	5	5	5
## 19	H035	LD 2015	1 20/05/2015	11	4	3	3
## 20	H036	LD 2015	1 21/05/2015	38	5	4	3
## 21	H069	LD 2015	1 27/05/2015	35	4	4	4
## 22	A703	LD 2015	2 25/05/2015	8	4	3	3
## 23	3156330	HD 2015	1 17/05/2015	45	5	5	3
## 24	3402230	HD 2015	1 07/04/2015	12	4	4	4
## 25	A663	HD 2015	1 06/04/2015	45	6	6	5
## 26	A903	HD 2015	1 06/04/2015	43	5	5	5
## 27	C005	HD 2015	1 28/05/2015	28	4	3	3
## 28	C014	HD 2015	1 06/05/2015	46	3	3	3
## 29	C024	HD 2015	1 07/05/2015	13	5	5	5
## 30	C080	HD 2015	1 22/05/2015	16	5	5	4
## 31	C469	HD 2015	1 05/04/2015	29	6	6	6
## 32	C525	HD 2015	1 07/04/2015	31	4	4	4
## 33	C582	HD 2015	1 17/05/2015	15	5	5	4
## 34	C851	HD 2015	1 07/04/2015	27	4	4	4
## 35	C852	HD 2015	1 08/04/2015	15	4	4	4
## 36	D464	HD 2015	1 13/05/2015	44	5	5	4
## 37	E200	HD 2015	1 18/05/2015	14	5	5	4
## 38	E300	HD 2015	1 07/05/2015	5	5	5	5
## 39	G275	HD 2015	1 07/04/2015	1	5	4	4
## 40	A663	HD 2015	2 24/05/2015	47	5	5	5
## 41	A903	HD 2015	2 21/05/2015	43	5	4	4
## 42	C038	HD 2015	2 19/05/2015	17	5	4	3
## 43	C525	HD 2015	2 19/05/2015	31	4	3	3
## 44	C851	HD 2015	2 21/05/2015	27	5	4	4
## 45	3156384	LD 2016	1 21/04/2016	34	4	4	4
## 46	3296489	LD 2016	1 15/05/2016	42	5	3	3
## 47	3402517	LD 2016	1 20/04/2016	9	4	4	4
## 48	C522	LD 2016	1 12/05/2016	37	5	5	4
## 49	C524	LD 2016	1 18/04/2016	19	5	5	5
## 50	C548	LD 2016	1 14/05/2016	7	5	5	5
## 51	C723	LD 2016	1 21/04/2016	39	5	5	5
## 52	E117	LD 2016	1 23/05/2016	26	5	5	5
## 53	E152	LD 2016	1 19/04/2016	21	5	5	5
## 54	E200	LD 2016	1 19/04/2016	8	4	4	4
## 55	E209	LD 2016	1 19/04/2016	38	5	5	5
## 56	G296	LD 2016	1 19/04/2016	18	5	4	4
## 57	G606	LD 2016	1 10/06/2016	23	3	3	2
## 58	H024	LD 2016	1 20/04/2016	24	5	5	5
## 59	H069	LD 2016	1 05/06/2016	33	4	4	4
## 60	H153	LD 2016	1 20/04/2016	20	6	4	3
## 61	H202	LD 2016	1 27/05/2016	25	5	5	4
## 62	3402517	LD 2016	2 04/06/2016	9	5	4	4
## 63	E152	LD 2016	2 07/06/2016	21	5	3	3
## 64	3156330	HD 2016	1 20/04/2016	45	5	5	5
## 65	3389073	HD 2016	1 20/04/2016	29	5	5	5
## 66	A663	HD 2016	1 20/04/2016	44	4	4	4
## 67	A903	HD 2016	1 19/04/2016	43	4	4	4

## 68	C005	HD 2016	1	20/04/2016	28	4	4	4
## 69	C024	HD 2016	1	20/04/2016	13	4	3	3
## 70	C080	HD 2016	1	21/04/2016	16	3	3	1
## 71	C170	HD 2016	1	19/04/2016	47	4	4	4
## 72	C525	HD 2016	1	20/04/2016	31	5	5	5
## 73	C527	HD 2016	1	20/04/2016	30	5	5	5
## 74	C716	HD 2016	1	27/04/2016	2	5	4	3
## 75	C851	HD 2016	1	04/06/2016	27	5	5	4
## 76	D706	HD 2016	1	07/06/2016	14	4	1	1
## 77	G294	HD 2016	1	23/04/2016	15	4	4	4
## 78	G611	HD 2016	1	24/04/2016	3	2	2	2
## 79	G615	HD 2016	1	04/06/2016	15	6	4	4
## 80	H152	HD 2016	1	22/04/2016	12	3	2	2
## 81	H203	HD 2016	1	20/04/2016	14	4	4	4
## 82	H324	HD 2016	1	27/05/2016	32	4	4	0
## 83	A663	HD 2016	2	05/06/2016	44	4	3	3
## 84	C080	HD 2016	2	10/06/2016	16	5	4	4
## 85	H203	HD 2016	2	06/06/2016	28	5	3	0
## 86	3389073	LD 2017	1	09/05/2017	25	5	4	4
## 87	3408094	LD 2017	1	15/04/2017	9	5	5	5
## 88	3410354	LD 2017	1	20/04/2017	40	5	5	5
## 89	3410366	LD 2017	1	15/04/2017	10	5	4	4
## 90	3411609	LD 2017	1	15/04/2017	33	5	5	5
## 91	3423966	LD 2017	1	20/05/2017	35	5	5	5
## 92	C014	LD 2017	1	14/04/2017	42	5	3	3
## 93	C522	LD 2017	1	07/05/2017	37	6	6	5
## 94	C548	LD 2017	1	15/04/2017	7	4	4	4
## 95	C853	LD 2017	1	19/04/2017	34	5	3	2
## 96	E227	LD 2017	1	12/05/2017	41	5	5	5
## 97	E301	LD 2017	1	29/04/2017	11	6	5	5
## 98	G147	LD 2017	1	15/04/2017	39	5	3	3
## 99	G166	LD 2017	1	15/04/2017	26	6	6	6
## 100	G296	LD 2017	1	15/04/2017	18	5	5	5
## 101	G849	LD 2017	1	08/05/2017	23	5	5	5
## 102	G961	LD 2017	1	14/04/2017	38	5	4	4
## 103	H047	LD 2017	1	16/04/2017	19	5	5	1
## 104	H153	LD 2017	1	15/05/2017	36	6	6	6
## 105	H901	LD 2017	1	16/04/2017	20	5	4	4
## 106	C548	LD 2017	2	03/06/2017	7	4	2	0
## 107	G166	LD 2017	2	42889	26	5	4	2
## 108	H901	LD 2017	2	03/06/2017	20	4	3	2
## 109	3410802	HD 2017	1	16/04/2017	27	5	5	5
## 110	C170	HD 2017	1	15/04/2017	47	5	5	5
## 111	C533	HD 2017	1	16/04/2017	14	4	2	1
## 112	C852	HD 2017	1	16/04/2017	15	5	5	5
## 113	E313	HD 2017	1	15/04/2017	16	4	4	4
## 114	G681	HD 2017	1	14/04/2017	13	5	5	5
## 115	G845	HD 2017	1	15/04/2017	32	5	5	5
## 116	G890	HD 2017	1	01/05/2017	46	5	3	3
## 117	H178	HD 2017	1	29/04/2017	29	5	5	5
## 118	H202	HD 2017	1	15/04/2017	12	5	5	5
## 119	H203	HD 2017	1	29/05/2017	44	5	3	2
## 120	H301	HD 2017	1	15/04/2017	4	5	4	4
## 121	H404	HD 2017	1	20/04/2017	1	3	2	2

## 122	H423	HD 2017	1 22/04/2017	2	4	4	4
## 123	H907	HD 2017	1 30/04/2017	6	4	4	4
## 124	C170	HD 2017	2 05/06/2017	47	4	3	2
## 125	C533	HD 2017	2 03/06/2017	17	4	4	4
## 126	H404	HD 2017	2 02/06/2017	1	5	4	1
## 127	3410362	LD 2018	1 25/04/2018	11	3	3	3
## 128	3410794	LD 2018	1 11/06/2018	38	5	4	2
## 129	C014	LD 2018	1 23/04/2018	41	5	3	3
## 130	C503	LD 2018	1 24/04/2018	19	4	4	4
## 131	C548	LD 2018	1 25/05/2018	7	5	4	4
## 132	C853	LD 2018	1 24/04/2018	34	5	5	5
## 133	G166	LD 2018	1 24/04/2018	26	6	4	4
## 134	G190	LD 2018	1 23/04/2018	21	5	5	5
## 135	G388	LD 2018	1 12/06/2018	35	5	5	4
## 136	G681	LD 2018	1 23/04/2018	9	5	5	5
## 137	G740	LD 2018	1 04/06/2018	26	5	4	3
## 138	H178	LD 2018	1 10/06/2018	33	5	5	3
## 139	H407	LD 2018	1 08/06/2018	23	5	3	2
## 140	H570	LD 2018	1 08/06/2018	37	4	3	3
## 141	H619 bis	LD 2018	1 16/05/2018	20	5	5	5
## 142	H680	LD 2018	1 24/04/2018	25	4	2	0
## 143	H903	LD 2018	1 25/04/2018	42	5	5	5
## 144	H907	LD 2018	1 17/05/2018	8	5	5	5
## 145	C503	LD 2018	2 05/06/2018	19	4	3	3
## 146	G190	LD 2018	2 09/06/2018	21	5	4	4
## 147	G681	LD 2018	2 06/06/2018	9	5	2	0
## 148	H680	LD 2018	2 16/05/2018	25	5	2	2
## 149	3410354	HD 2018	1 24/04/2018	48	5	4	4
## 150	3410802	HD 2018	1 17/05/2018	27	5	5	5
## 151	3423966	HD 2018	1 23/04/2018	5	5	4	4
## 152	3424705	HD 2018	1 24/05/2018	31	4	4	4
## 153	A663	HD 2018	1 25/04/2018	43	4	3	3
## 154	C170	HD 2018	1 23/04/2018	47	4	4	4
## 155	C533	HD 2018	1 23/04/2018	17	5	5	5
## 156	E227	HD 2018	1 25/04/2018	44	5	5	5
## 157	E301	HD 2018	1 25/04/2018	14	3	3	3
## 158	E313	HD 2018	1 24/04/2018	16	4	4	4
## 159	G296	HD 2018	1 25/04/2018	32	4	3	3
## 160	G847	HD 2018	1 23/04/2018	2	5	5	5
## 161	H423	HD 2018	1 19/05/2018	3	4	3	3
## 162	H558	HD 2018	1 16/05/2018	46	5	4	4
## 163	H676	HD 2018	1 10/06/2018	12	5	4	4
## 164	H689	HD 2018	1 18/05/2018	30	5	5	0
## 165	H812	HD 2018	1 18/05/2018	6	3	2	2
## 166	H902	HD 2018	1 24/04/2018	15	5	4	4
## 167	3410354	HD 2018	2 15/06/2018	48	5	4	3
## 168	3423966	HD 2018	2 08/06/2018	5	5	3	0
## 169	A663	HD 2018	2 15/06/2018	43	4	3	3
## 170	E301	HD 2018	2 08/06/2018	14	4	4	4
## 171	G296	HD 2018	2 06/06/2018	32	6	4	4
## 172	C548	LD 2019	1 20/04/2019	7	4	4	4
## 173	H907	LD 2019	2 26/04/2019	8	5	5	5
## 174	3410362	LD 2019	1 19/04/2019	11	4	3	3
## 175	G849	LD 2019	1 19/04/2019	18	5	4	1

## 176	C503	LD	2019	1	20/04/2019	19	5	5	5
## 177	C503	LD	2019	2	05/06/2019	19	3	3	2
## 178	E378	LD	2019	1	22/04/2019	20	4	4	4
## 179	G190	LD	2019	1	18/04/2019	21	6	6	6
## 180	E460	LD	2019	2	05/05/2019	22	5	5	5
## 181	H504	LD	2019	2	03/05/2019	24	5	5	5
## 182	H680	LD	2019	1	21/04/2019	25	3	3	3
## 183	H680	LD	2019	2	06/06/2019	25	4	3	3
## 184	H619 bis	LD	2019	2	11/05/2019	26	5	5	5
## 185	H178	LD	2019	1	03/05/2019	33	5	3	3
## 186	H178	LD	2019	2	16/06/2019	33	4	3	2
## 187	H558	LD	2019	1	19/04/2019	34	5	3	3
## 188	C014	LD	2019	1	18/04/2019	41	5	4	4
## 189	B256	LD	2019	2	07/05/2019	42	5	3	3
## 190	G847	HD	2019	1	03/04/2019	2	5	5	5
## 191	H540	HD	2019	1	19/04/2019	3	5	5	5
## 192	E666	HD	2019	1	23/04/2019	6	3	3	3
## 193	E614	HD	2019	2	29/05/2019	6	3	1	0
## 194	G681	HD	2019	1	17/04/2019	12	5	5	5
## 195	H813	HD	2019	1	20/04/2019	13	4	4	4
## 196	E301	HD	2019	1	20/04/2019	14	5	4	4
## 197	E534	HD	2019	1	30/04/2019	15	6	5	5
## 198	E313	HD	2019	1	21/04/2019	16	5	3	3
## 199	E313	HD	2019	2	06/06/2019	16	4	4	1
## 200	C533	HD	2019	3	11/05/2019	17	5	5	5
## 201	G166	HD	2019	2	01/05/2019	28	6	6	6
## 202	3424705	HD	2019	1	18/04/2019	31	5	5	3
## 203	3424705	HD	2019	2	05/06/2019	31	4	3	3
## 204	H770	HD	2019	2	15/05/2019	43	4	4	4
## 205	E227	HD	2019	2	04/06/2019	44	4	2	2
## 206	H451	HD	2019	1	18/04/2019	45	5	4	3
## 207	G849	HD	2019	2	31/05/2019	45	4	3	3
## 208	B337	HD	2019	2	01/06/2019	46	3	3	2
## 209	C170	HD	2019	1	19/04/2019	47	5	5	5
## 210	B336	HD	2019	2	02/06/2019	47	4	4	2
##	Males	Females	deaths	H2Fdeaths	E2Hdeaths	hatchsurvivalrate	survivalrate		
## 1	1	2	0	0	0	1.0000000	1.0000000		
## 2	4	1	0	0	0	1.0000000	1.0000000		
## 3	1	2	1	0	1	0.7500000	0.7500000		
## 4	2	2	0	0	0	1.0000000	1.0000000		
## 5	3	1	1	0	1	0.8000000	0.8000000		
## 6	3	2	0	0	0	1.0000000	1.0000000		
## 7	3	1	1	0	1	0.8000000	0.8000000		
## 8	0	2	3	0	3	0.4000000	0.4000000		
## 9	1	3	0	0	0	1.0000000	1.0000000		
## 10	2	0	1	0	1	0.6666667	0.6666667		
## 11	2	1	0	0	0	1.0000000	1.0000000		
## 12	4	0	0	0	0	1.0000000	1.0000000		
## 13	1	3	0	0	0	1.0000000	1.0000000		
## 14	0	4	0	0	0	1.0000000	1.0000000		
## 15	2	3	0	0	0	1.0000000	1.0000000		
## 16	3	1	0	0	0	1.0000000	1.0000000		
## 17	3	0	2	1	1	0.7500000	0.5000000		
## 18	4	1	0	0	0	1.0000000	1.0000000		

## 19	2	1	1	0	1	0.7500000	0.7500000
## 20	1	3	2	1	1	0.8000000	0.6000000
## 21	1	3	0	0	0	1.0000000	1.0000000
## 22	2	1	1	0	1	0.7500000	0.7500000
## 23	2	3	2	2	0	1.0000000	0.6000000
## 24	1	3	0	0	0	1.0000000	1.0000000
## 25	3	3	1	1	0	1.0000000	0.8333333
## 26	2	3	0	0	0	1.0000000	1.0000000
## 27	0	3	1	0	1	0.7500000	0.7500000
## 28	2	1	0	0	0	1.0000000	1.0000000
## 29	1	4	0	0	0	1.0000000	1.0000000
## 30	3	2	1	1	0	1.0000000	0.8000000
## 31	3	3	0	0	0	1.0000000	1.0000000
## 32	3	1	0	0	0	1.0000000	1.0000000
## 33	1	4	1	1	0	1.0000000	0.8000000
## 34	2	2	0	0	0	1.0000000	1.0000000
## 35	1	3	0	0	0	1.0000000	1.0000000
## 36	2	3	1	1	0	1.0000000	0.8000000
## 37	1	4	1	1	0	1.0000000	0.8000000
## 38	1	4	0	0	0	1.0000000	1.0000000
## 39	3	1	1	0	1	0.8000000	0.8000000
## 40	2	3	0	0	0	1.0000000	1.0000000
## 41	1	3	1	0	1	0.8000000	0.8000000
## 42	2	2	2	1	1	0.8000000	0.6000000
## 43	1	2	1	0	1	0.7500000	0.7500000
## 44	1	3	1	0	1	0.8000000	0.8000000
## 45	3	1	0	0	0	1.0000000	1.0000000
## 46	2	1	2	0	2	0.6000000	0.6000000
## 47	2	2	0	0	0	1.0000000	1.0000000
## 48	4	1	1	1	0	1.0000000	0.8000000
## 49	1	4	0	0	0	1.0000000	1.0000000
## 50	4	1	0	0	0	1.0000000	1.0000000
## 51	3	2	0	0	0	1.0000000	1.0000000
## 52	3	2	0	0	0	1.0000000	1.0000000
## 53	1	4	0	0	0	1.0000000	1.0000000
## 54	1	3	0	0	0	1.0000000	1.0000000
## 55	2	3	0	0	0	1.0000000	1.0000000
## 56	4	0	1	0	1	0.8000000	0.8000000
## 57	2	1	1	1	0	1.0000000	0.6666667
## 58	1	4	0	0	0	1.0000000	1.0000000
## 59	2	2	0	0	0	1.0000000	1.0000000
## 60	3	1	3	1	2	0.6666667	0.5000000
## 61	2	2	1	1	0	1.0000000	0.8000000
## 62	1	3	1	0	1	0.8000000	0.8000000
## 63	2	1	2	0	2	0.6000000	0.6000000
## 64	4	1	0	0	0	1.0000000	1.0000000
## 65	4	1	0	0	0	1.0000000	1.0000000
## 66	1	3	0	0	0	1.0000000	1.0000000
## 67	2	2	0	0	0	1.0000000	1.0000000
## 68	2	2	0	0	0	1.0000000	1.0000000
## 69	1	2	1	0	1	0.7500000	0.7500000
## 70	1	2	2	2	0	1.0000000	0.3333333
## 71	1	3	0	0	0	1.0000000	1.0000000
## 72	1	4	0	0	0	1.0000000	1.0000000

## 73	2	3	0	0	0	1.0000000	1.0000000
## 74	3	1	2	1	1	0.8000000	0.6000000
## 75	3	2	1	1	0	1.0000000	0.8000000
## 76	0	1	3	0	3	0.2500000	0.2500000
## 77	1	3	0	0	0	1.0000000	1.0000000
## 78	1	1	0	0	0	1.0000000	1.0000000
## 79	0	4	2	0	2	0.6666667	0.6666667
## 80	0	2	1	0	1	0.6666667	0.6666667
## 81	1	3	0	0	0	1.0000000	1.0000000
## 82	2	2	4	4	0	1.0000000	0.0000000
## 83	1	2	1	0	1	0.7500000	0.7500000
## 84	1	3	1	0	1	0.8000000	0.8000000
## 85	2	1	5	3	2	0.6000000	0.0000000
## 86	3	1	1	0	1	0.8000000	0.8000000
## 87	3	2	0	0	0	1.0000000	1.0000000
## 88	3	2	0	0	0	1.0000000	1.0000000
## 89	0	4	1	0	1	0.8000000	0.8000000
## 90	3	2	0	0	0	1.0000000	1.0000000
## 91	3	2	0	0	0	1.0000000	1.0000000
## 92	2	1	2	0	2	0.6000000	0.6000000
## 93	3	3	1	1	0	1.0000000	0.8333333
## 94	4	0	0	0	0	1.0000000	1.0000000
## 95	1	2	3	1	2	0.6000000	0.4000000
## 96	3	2	0	0	0	1.0000000	1.0000000
## 97	3	2	1	0	1	0.8333333	0.8333333
## 98	2	1	2	0	2	0.6000000	0.6000000
## 99	3	3	0	0	0	1.0000000	1.0000000
## 100	3	2	0	0	0	1.0000000	1.0000000
## 101	2	3	0	0	0	1.0000000	1.0000000
## 102	2	2	1	0	1	0.8000000	0.8000000
## 103	2	3	4	4	0	1.0000000	0.2000000
## 104	1	5	0	0	0	1.0000000	1.0000000
## 105	1	3	1	0	1	0.8000000	0.8000000
## 106	2	0	4	2	2	0.5000000	0.0000000
## 107	2	2	3	2	1	0.8000000	0.4000000
## 108	1	2	2	1	1	0.7500000	0.5000000
## 109	2	3	0	0	0	1.0000000	1.0000000
## 110	3	2	0	0	0	1.0000000	1.0000000
## 111	2	0	3	1	2	0.5000000	0.2500000
## 112	2	3	0	0	0	1.0000000	1.0000000
## 113	3	1	0	0	0	1.0000000	1.0000000
## 114	4	1	0	0	0	1.0000000	1.0000000
## 115	3	2	0	0	0	1.0000000	1.0000000
## 116	1	2	2	0	2	0.6000000	0.6000000
## 117	2	3	0	0	0	1.0000000	1.0000000
## 118	2	3	0	0	0	1.0000000	1.0000000
## 119	1	2	3	1	2	0.6000000	0.4000000
## 120	2	2	1	0	1	0.8000000	0.8000000
## 121	0	2	1	0	1	0.6666667	0.6666667
## 122	1	3	0	0	0	1.0000000	1.0000000
## 123	3	1	0	0	0	1.0000000	1.0000000
## 124	1	2	2	1	1	0.7500000	0.5000000
## 125	2	2	0	0	0	1.0000000	1.0000000
## 126	3	1	4	3	1	0.8000000	0.2000000



## 127	3	0	0	0	0	1.0000000	1.0000000
## 128	4	0	3	2	1	0.8000000	0.4000000
## 129	3	0	2	0	2	0.6000000	0.6000000
## 130	2	2	0	0	0	1.0000000	1.0000000
## 131	1	3	1	0	1	0.8000000	0.8000000
## 132	2	3	0	0	0	1.0000000	1.0000000
## 133	3	1	2	0	2	0.6666667	0.6666667
## 134	2	3	0	0	0	1.0000000	1.0000000
## 135	3	2	1	1	0	1.0000000	0.8000000
## 136	3	2	0	0	0	1.0000000	1.0000000
## 137	2	2	2	1	1	0.8000000	0.6000000
## 138	1	4	2	2	0	1.0000000	0.6000000
## 139	2	1	3	1	2	0.6000000	0.4000000
## 140	1	2	1	0	1	0.7500000	0.7500000
## 141	3	2	0	0	0	1.0000000	1.0000000
## 142	1	1	4	2	2	0.5000000	0.0000000
## 143	2	3	0	0	0	1.0000000	1.0000000
## 144	1	4	0	0	0	1.0000000	1.0000000
## 145	2	1	1	0	1	0.7500000	0.7500000
## 146	2	2	1	0	1	0.8000000	0.8000000
## 147	2	0	5	2	3	0.4000000	0.0000000
## 148	1	1	3	0	3	0.4000000	0.4000000
## 149	2	2	1	0	1	0.8000000	0.8000000
## 150	4	1	0	0	0	1.0000000	1.0000000
## 151	1	3	1	0	1	0.8000000	0.8000000
## 152	1	3	0	0	0	1.0000000	1.0000000
## 153	1	2	1	0	1	0.7500000	0.7500000
## 154	3	1	0	0	0	1.0000000	1.0000000
## 155	3	2	0	0	0	1.0000000	1.0000000
## 156	2	3	0	0	0	1.0000000	1.0000000
## 157	2	1	0	0	0	1.0000000	1.0000000
## 158	2	2	0	0	0	1.0000000	1.0000000
## 159	1	2	1	0	1	0.7500000	0.7500000
## 160	3	2	0	0	0	1.0000000	1.0000000
## 161	0	3	1	0	1	0.7500000	0.7500000
## 162	1	3	1	0	1	0.8000000	0.8000000
## 163	0	4	1	0	1	0.8000000	0.8000000
## 164	3	2	5	5	0	1.0000000	0.0000000
## 165	1	1	1	0	1	0.6666667	0.6666667
## 166	3	1	1	0	1	0.8000000	0.8000000
## 167	0	4	2	1	1	0.8000000	0.6000000
## 168	0	3	5	3	2	0.6000000	0.0000000
## 169	2	1	1	0	1	0.7500000	0.7500000
## 170	4	0	0	0	0	1.0000000	1.0000000
## 171	3	1	2	0	2	0.6666667	0.6666667
## 172	3	1	0	0	0	1.0000000	1.0000000
## 173	3	2	0	0	0	1.0000000	1.0000000
## 174	2	1	1	0	1	0.7500000	0.7500000
## 175	4	0	4	3	1	0.8000000	0.2000000
## 176	2	3	0	0	0	1.0000000	1.0000000
## 177	1	2	1	1	0	1.0000000	0.6666667
## 178	3	1	0	0	0	1.0000000	1.0000000
## 179	3	3	0	0	0	1.0000000	1.0000000
## 180	2	3	0	0	0	1.0000000	1.0000000

## 181	3	2	0	0	0	1.0000000	1.0000000
## 182	1	2	0	0	0	1.0000000	1.0000000
## 183	3	0	1	0	1	0.7500000	0.7500000
## 184	0	5	0	0	0	1.0000000	1.0000000
## 185	2	1	2	0	2	0.6000000	0.6000000
## 186	3	0	2	1	1	0.7500000	0.5000000
## 187	1	2	2	0	2	0.6000000	0.6000000
## 188	1	3	1	0	1	0.8000000	0.8000000
## 189	3	1	2	0	2	0.6000000	0.6000000
## 190	4	1	0	0	0	1.0000000	1.0000000
## 191	3	2	0	0	0	1.0000000	1.0000000
## 192	1	2	0	0	0	1.0000000	1.0000000
## 193	0	1	3	1	2	0.3333333	0.0000000
## 194	1	4	0	0	0	1.0000000	1.0000000
## 195	1	3	0	0	0	1.0000000	1.0000000
## 196	0	4	1	0	1	0.8000000	0.8000000
## 197	1	4	1	0	1	0.8333333	0.8333333
## 198	2	1	2	0	2	0.6000000	0.6000000
## 199	1	3	3	3	0	1.0000000	0.2500000
## 200	3	2	0	0	0	1.0000000	1.0000000
## 201	1	5	0	0	0	1.0000000	1.0000000
## 202	3	3	2	2	0	1.0000000	0.6000000
## 203	2	1	1	0	1	0.7500000	0.7500000
## 204	1	3	0	0	0	1.0000000	1.0000000
## 205	2	0	2	0	2	0.5000000	0.5000000
## 206	2	2	2	1	1	0.8000000	0.6000000
## 207	2	1	1	0	1	0.7500000	0.7500000
## 208	1	2	1	1	0	1.0000000	0.6666667
## 209	1	4	0	0	0	1.0000000	1.0000000
## 210	3	1	2	2	0	1.0000000	0.5000000
##	femaleratio		femaledeaths				
## 1	2.0000000		0.0000000				
## 2	0.2500000		0.0000000				
## 3	2.0000000		2.0000000				
## 4	1.0000000		0.0000000				
## 5	0.3333333		0.3333333				
## 6	0.6666667		0.0000000				
## 7	0.3333333		0.3333333				
## 8	Inf		Inf				
## 9	3.0000000		0.0000000				
## 10	0.0000000		0.0000000				
## 11	0.5000000		0.0000000				
## 12	0.0000000		0.0000000				
## 13	3.0000000		0.0000000				
## 14	Inf		NaN				
## 15	1.5000000		0.0000000				
## 16	0.3333333		0.0000000				
## 17	0.0000000		0.0000000				
## 18	0.2500000		0.0000000				
## 19	0.5000000		0.5000000				
## 20	3.0000000		6.0000000				
## 21	3.0000000		0.0000000				
## 22	0.5000000		0.5000000				
## 23	1.5000000		3.0000000				

## 24	3.0000000	0.0000000
## 25	1.0000000	1.0000000
## 26	1.5000000	0.0000000
## 27	Inf	Inf
## 28	0.5000000	0.0000000
## 29	4.0000000	0.0000000
## 30	0.6666667	0.6666667
## 31	1.0000000	0.0000000
## 32	0.3333333	0.0000000
## 33	4.0000000	4.0000000
## 34	1.0000000	0.0000000
## 35	3.0000000	0.0000000
## 36	1.5000000	1.5000000
## 37	4.0000000	4.0000000
## 38	4.0000000	0.0000000
## 39	0.3333333	0.3333333
## 40	1.5000000	0.0000000
## 41	3.0000000	3.0000000
## 42	1.0000000	2.0000000
## 43	2.0000000	2.0000000
## 44	3.0000000	3.0000000
## 45	0.3333333	0.0000000
## 46	0.5000000	1.0000000
## 47	1.0000000	0.0000000
## 48	0.2500000	0.2500000
## 49	4.0000000	0.0000000
## 50	0.2500000	0.0000000
## 51	0.6666667	0.0000000
## 52	0.6666667	0.0000000
## 53	4.0000000	0.0000000
## 54	3.0000000	0.0000000
## 55	1.5000000	0.0000000
## 56	0.0000000	0.0000000
## 57	0.5000000	0.5000000
## 58	4.0000000	0.0000000
## 59	1.0000000	0.0000000
## 60	0.3333333	1.0000000
## 61	1.0000000	1.0000000
## 62	3.0000000	3.0000000
## 63	0.5000000	1.0000000
## 64	0.2500000	0.0000000
## 65	0.2500000	0.0000000
## 66	3.0000000	0.0000000
## 67	1.0000000	0.0000000
## 68	1.0000000	0.0000000
## 69	2.0000000	2.0000000
## 70	2.0000000	4.0000000
## 71	3.0000000	0.0000000
## 72	4.0000000	0.0000000
## 73	1.5000000	0.0000000
## 74	0.3333333	0.6666667
## 75	0.6666667	0.6666667
## 76	Inf	Inf
## 77	3.0000000	0.0000000

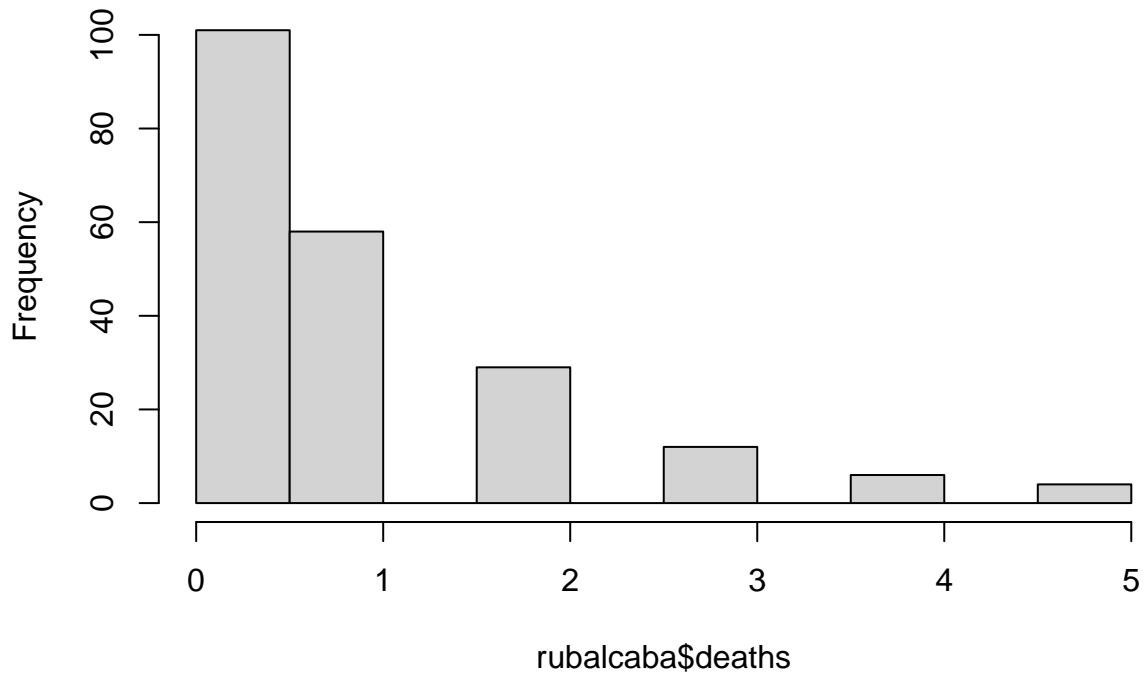
## 78	1.0000000	0.0000000
## 79	Inf	Inf
## 80	Inf	Inf
## 81	3.0000000	0.0000000
## 82	1.0000000	4.0000000
## 83	2.0000000	2.0000000
## 84	3.0000000	3.0000000
## 85	0.5000000	2.5000000
## 86	0.3333333	0.3333333
## 87	0.6666667	0.0000000
## 88	0.6666667	0.0000000
## 89	Inf	Inf
## 90	0.6666667	0.0000000
## 91	0.6666667	0.0000000
## 92	0.5000000	1.0000000
## 93	1.0000000	1.0000000
## 94	0.0000000	0.0000000
## 95	2.0000000	6.0000000
## 96	0.6666667	0.0000000
## 97	0.6666667	0.6666667
## 98	0.5000000	1.0000000
## 99	1.0000000	0.0000000
## 100	0.6666667	0.0000000
## 101	1.5000000	0.0000000
## 102	1.0000000	1.0000000
## 103	1.5000000	6.0000000
## 104	5.0000000	0.0000000
## 105	3.0000000	3.0000000
## 106	0.0000000	0.0000000
## 107	1.0000000	3.0000000
## 108	2.0000000	4.0000000
## 109	1.5000000	0.0000000
## 110	0.6666667	0.0000000
## 111	0.0000000	0.0000000
## 112	1.5000000	0.0000000
## 113	0.3333333	0.0000000
## 114	0.2500000	0.0000000
## 115	0.6666667	0.0000000
## 116	2.0000000	4.0000000
## 117	1.5000000	0.0000000
## 118	1.5000000	0.0000000
## 119	2.0000000	6.0000000
## 120	1.0000000	1.0000000
## 121	Inf	Inf
## 122	3.0000000	0.0000000
## 123	0.3333333	0.0000000
## 124	2.0000000	4.0000000
## 125	1.0000000	0.0000000
## 126	0.3333333	1.3333333
## 127	0.0000000	0.0000000
## 128	0.0000000	0.0000000
## 129	0.0000000	0.0000000
## 130	1.0000000	0.0000000
## 131	3.0000000	3.0000000

## 132	1.5000000	0.0000000
## 133	0.3333333	0.6666667
## 134	1.5000000	0.0000000
## 135	0.6666667	0.6666667
## 136	0.6666667	0.0000000
## 137	1.0000000	2.0000000
## 138	4.0000000	8.0000000
## 139	0.5000000	1.5000000
## 140	2.0000000	2.0000000
## 141	0.6666667	0.0000000
## 142	1.0000000	4.0000000
## 143	1.5000000	0.0000000
## 144	4.0000000	0.0000000
## 145	0.5000000	0.5000000
## 146	1.0000000	1.0000000
## 147	0.0000000	0.0000000
## 148	1.0000000	3.0000000
## 149	1.0000000	1.0000000
## 150	0.2500000	0.0000000
## 151	3.0000000	3.0000000
## 152	3.0000000	0.0000000
## 153	2.0000000	2.0000000
## 154	0.3333333	0.0000000
## 155	0.6666667	0.0000000
## 156	1.5000000	0.0000000
## 157	0.5000000	0.0000000
## 158	1.0000000	0.0000000
## 159	2.0000000	2.0000000
## 160	0.6666667	0.0000000
## 161	Inf	Inf
## 162	3.0000000	3.0000000
## 163	Inf	Inf
## 164	0.6666667	3.3333333
## 165	1.0000000	1.0000000
## 166	0.3333333	0.3333333
## 167	Inf	Inf
## 168	Inf	Inf
## 169	0.5000000	0.5000000
## 170	0.0000000	0.0000000
## 171	0.3333333	0.6666667
## 172	0.3333333	0.0000000
## 173	0.6666667	0.0000000
## 174	0.5000000	0.5000000
## 175	0.0000000	0.0000000
## 176	1.5000000	0.0000000
## 177	2.0000000	2.0000000
## 178	0.3333333	0.0000000
## 179	1.0000000	0.0000000
## 180	1.5000000	0.0000000
## 181	0.6666667	0.0000000
## 182	2.0000000	0.0000000
## 183	0.0000000	0.0000000
## 184	Inf	NaN
## 185	0.5000000	1.0000000

```
## 186 0.0000000 0.0000000
## 187 2.0000000 4.0000000
## 188 3.0000000 3.0000000
## 189 0.3333333 0.6666667
## 190 0.2500000 0.0000000
## 191 0.6666667 0.0000000
## 192 2.0000000 0.0000000
## 193      Inf      Inf
## 194 4.0000000 0.0000000
## 195 3.0000000 0.0000000
## 196      Inf      Inf
## 197 4.0000000 4.0000000
## 198 0.5000000 1.0000000
## 199 3.0000000 9.0000000
## 200 0.6666667 0.0000000
## 201 5.0000000 0.0000000
## 202 1.0000000 2.0000000
## 203 0.5000000 0.5000000
## 204 3.0000000 0.0000000
## 205 0.0000000 0.0000000
## 206 1.0000000 2.0000000
## 207 0.5000000 0.5000000
## 208 2.0000000 2.0000000
## 209 4.0000000 0.0000000
## 210 0.3333333 0.6666667
```

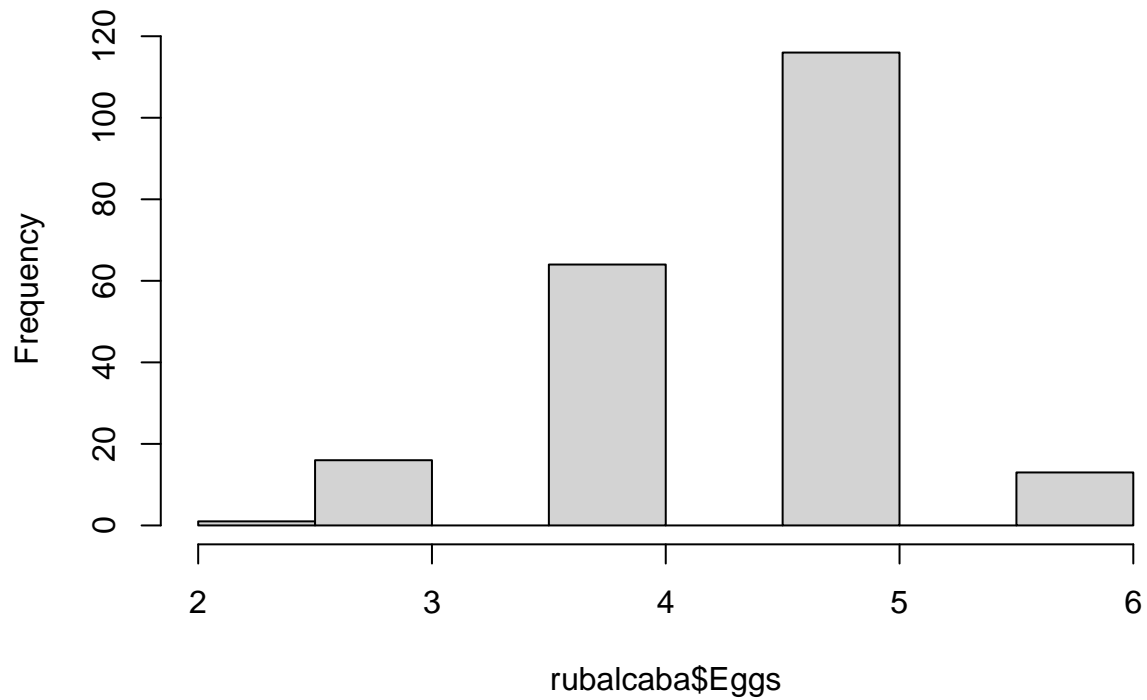
```
#create histograms of
hist(rubalcaba$deaths)
```

**Histogram of rubalcaba\$deaths**



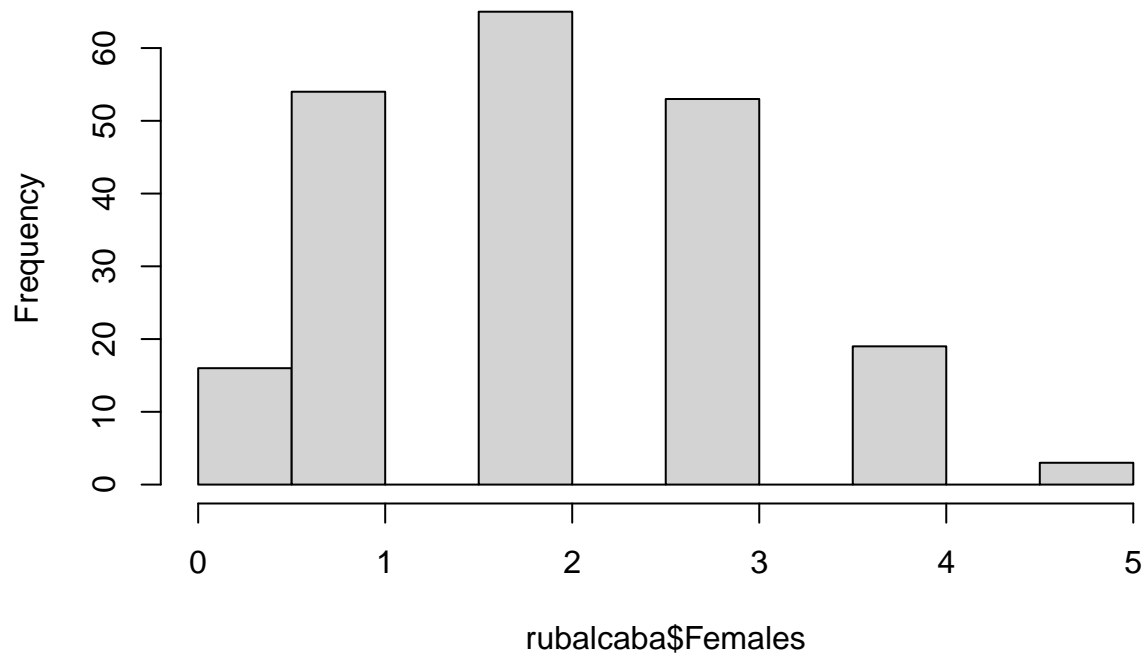
```
hist(rubalcaba$Eggs)
```

**Histogram of rubalcaba\$Eggs**

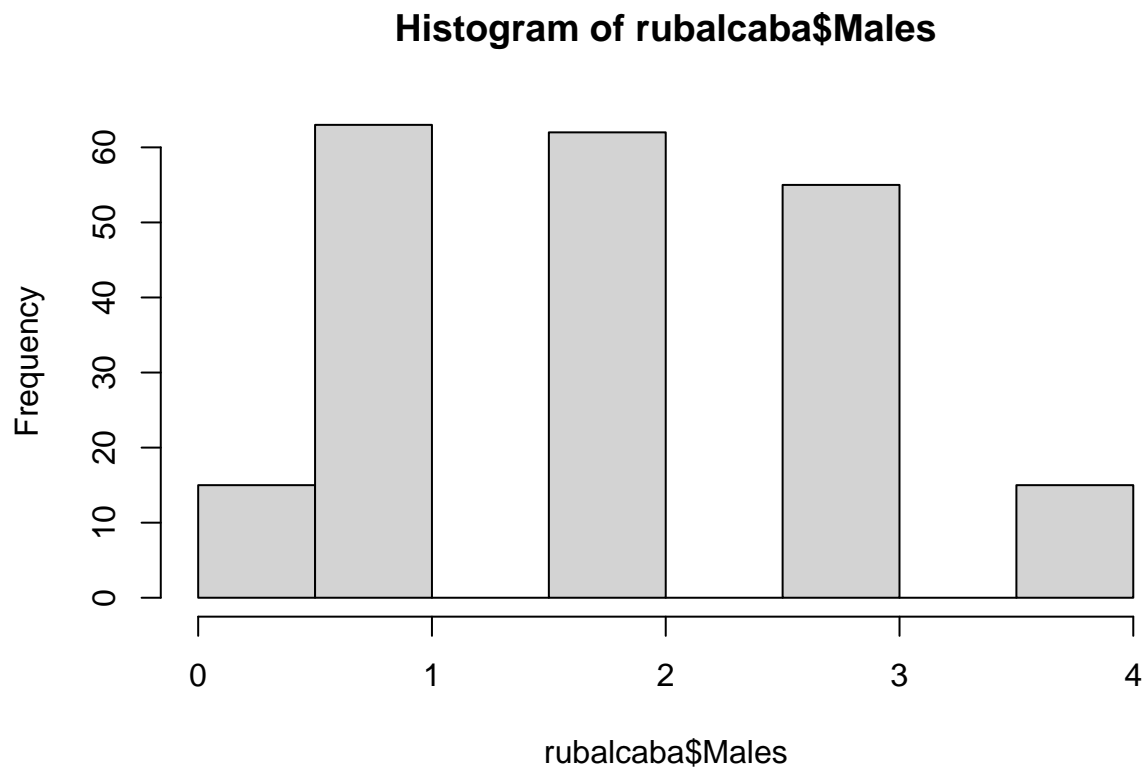


```
hist(rubalcaba$Females)
```

**Histogram of rubalcaba\$Females**



```
hist(rubalcaba$Males)
```

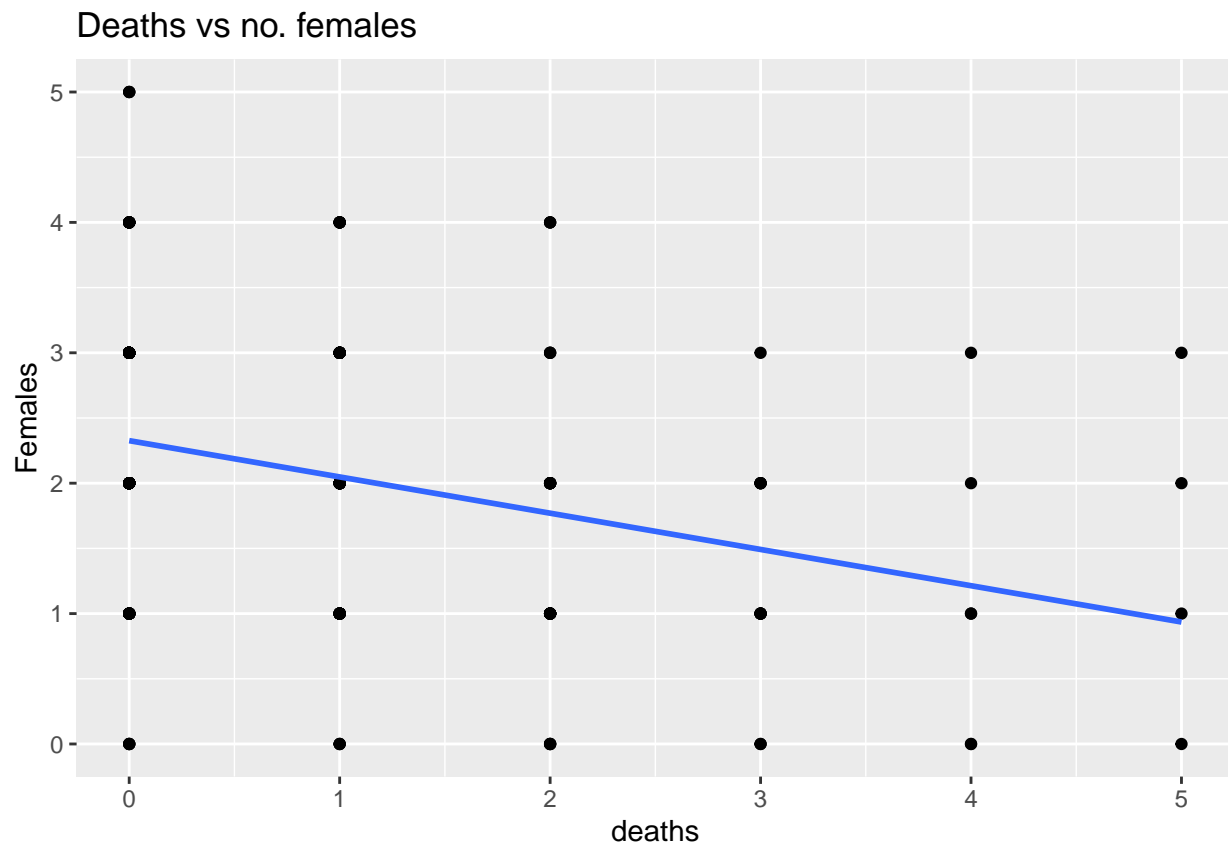


```
#Visualize relationship between deaths and number of females
```

```
ggplot(data =rubalcaba, (aes(x = deaths, y = Females))) + geom_point() + labs(title = "Deaths vs no. females") +  
  geom_smooth(method="lm", se=F)
```

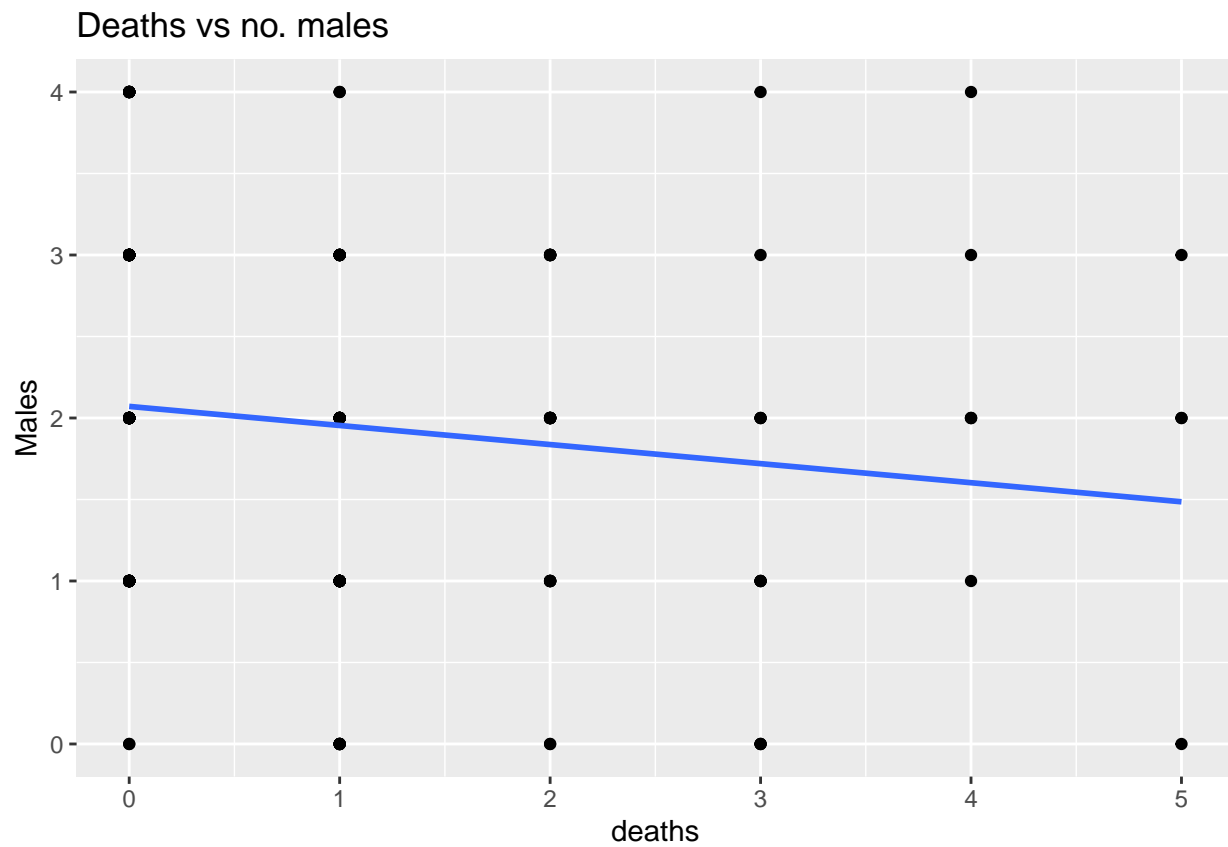
```
## `geom_smooth()` using formula = 'y ~ x'
```





```
#Visualize relationship between deaths and number of males  
ggplot(data =rubalcaba, (aes(x = deaths, y = Males))) + geom_point() + labs(title = "Deaths vs no. males")  
  geom_smooth(method="lm", se=F)
```

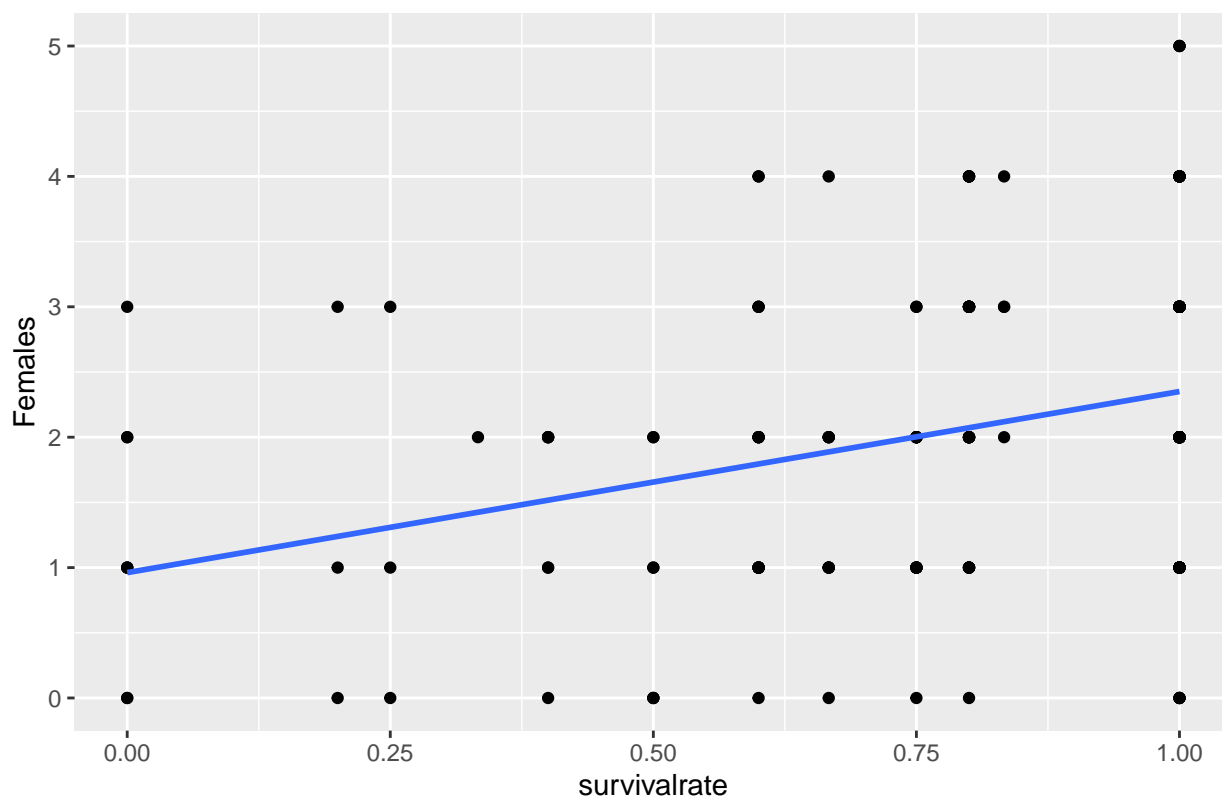
```
## `geom_smooth()` using formula = 'y ~ x'
```



```
#Visualize relationship between survival rate and number of females  
ggplot(data =rubalcaba, (aes(x = survivalrate, y = Females))) + geom_point() + labs(title = "Survival r  
  geom_smooth(method="lm", se=F)
```

```
## `geom_smooth()` using formula = 'y ~ x'
```

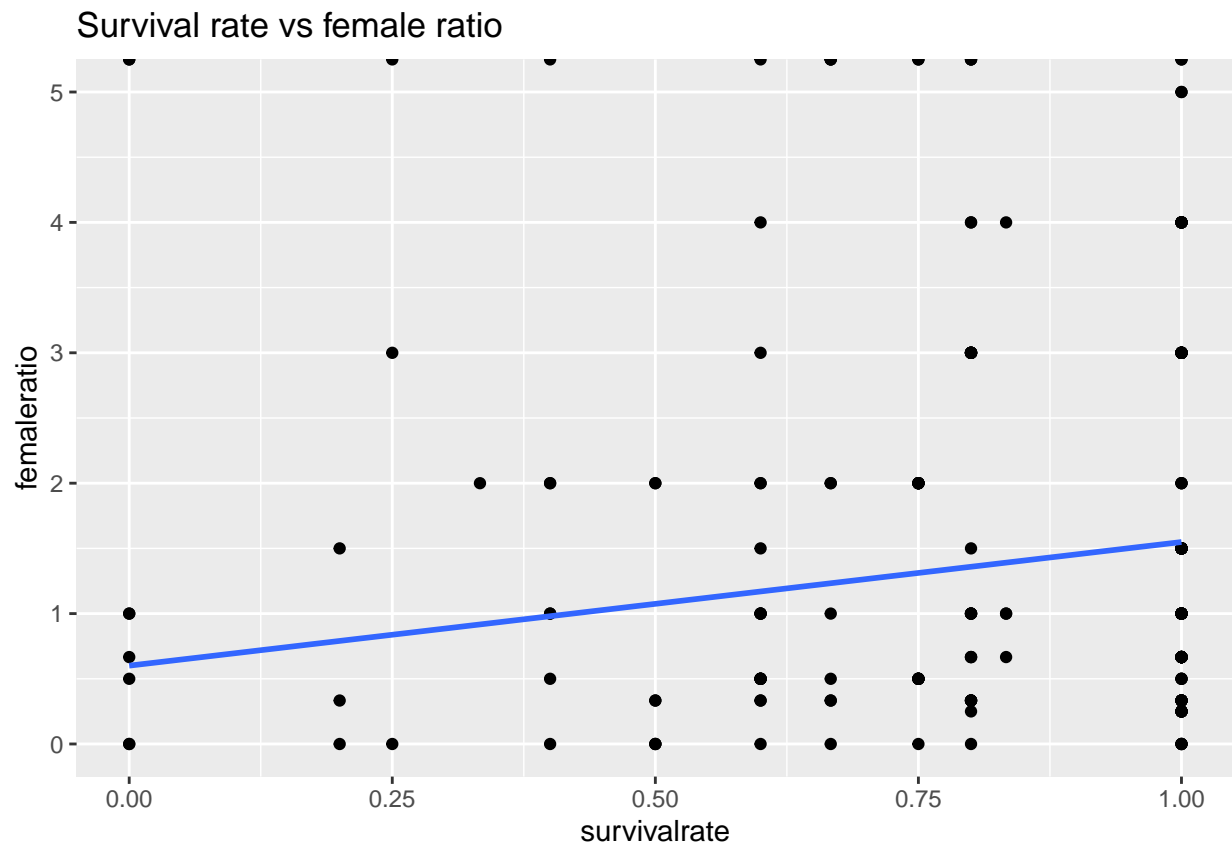
Survival rate vs no. females



```
#Visualize the relationship between survival rate and female ratio
ggplot(data =rubalcaba, (aes(x = survivalrate, y = femaleratio))) + geom_point() + labs(title = "Survival rate vs no. females")
  geom_smooth(method="lm", se=F)
```

```
## `geom_smooth()` using formula = 'y ~ x'
```

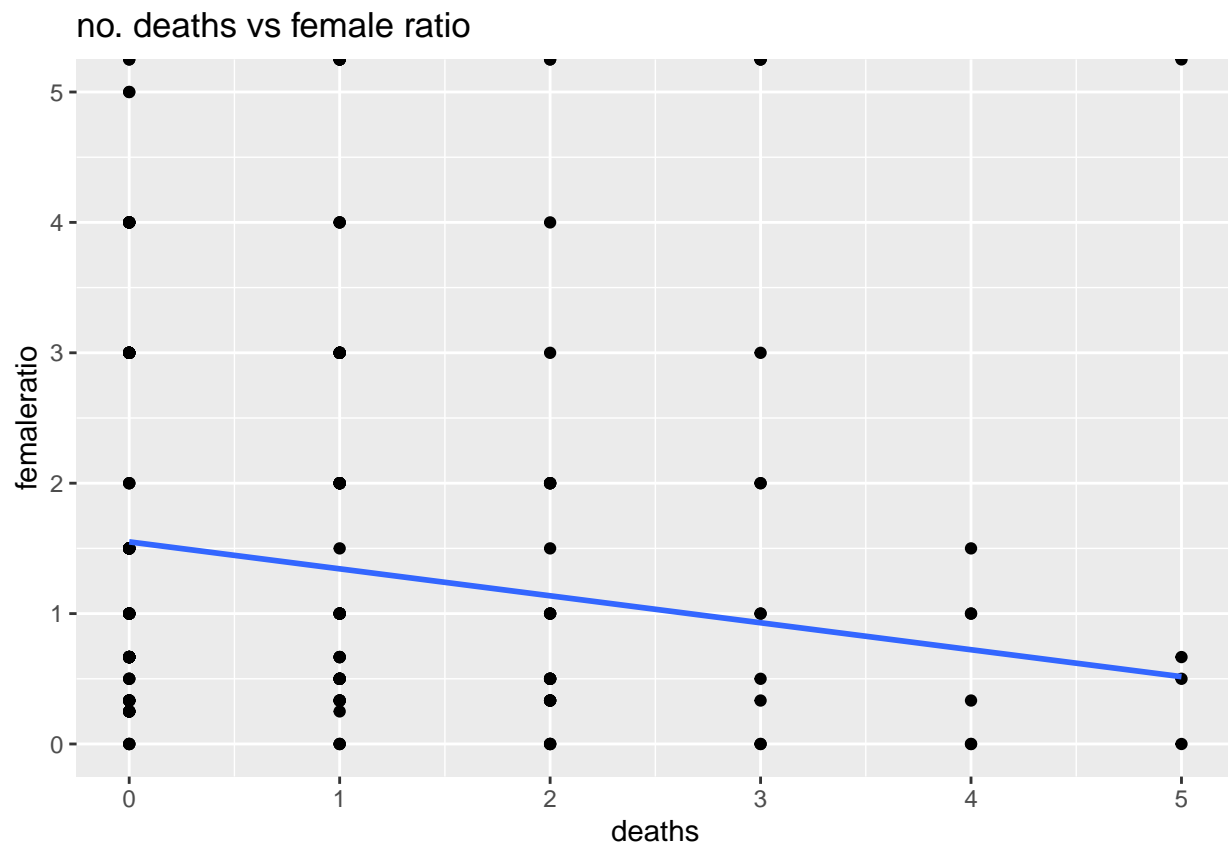
```
## Warning: Removed 15 rows containing non-finite values (`stat_smooth()`).
```



```
#visualize relationship between no. deaths and female ratio
ggplot(data =rubalcaba, (aes(x = deaths, y = femaleratio))) + geom_point() + labs(title = "no. deaths v
  geom_smooth(method="lm", se=F)
```

```
## `geom_smooth()` using formula = 'y ~ x'
```

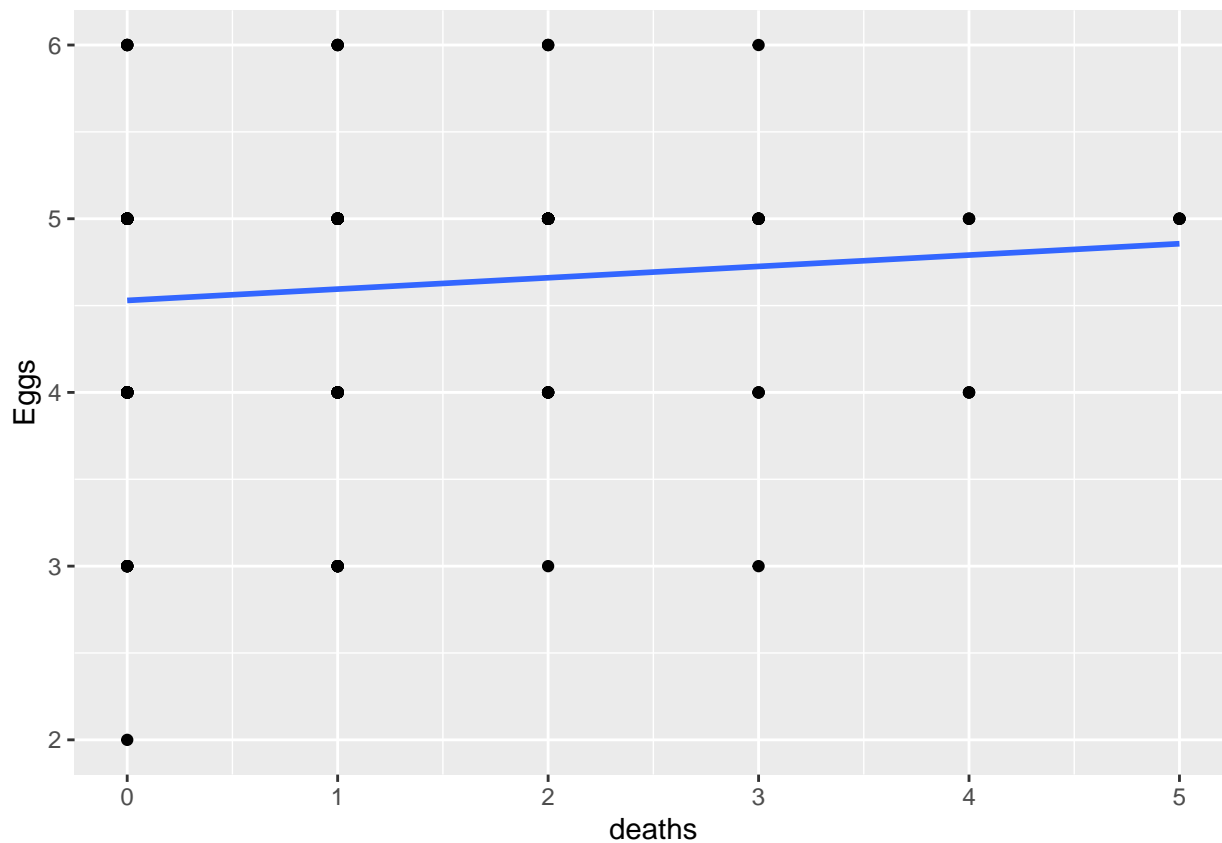
```
## Warning: Removed 15 rows containing non-finite values (`stat_smooth()`).
```



```
#relationship between male and female deaths
#ggplot(data = rubalcaba, (aes(x = femaleddeaths, y = rubalcaba$maleddeaths)))
#+geom_point() +
# geom_smooth(method="lm", se=F)
```

```
ggplot(data = rubalcaba, (aes(x = deaths, y = Eggs))) +geom_point() +
  geom_smooth(method="lm", se=F)
```

```
## `geom_smooth()` using formula = 'y ~ x'
```



```
sum(E2Hdeaths)
```

```
## [1] 119
```

```
sum(H2Fdeaths)
```

```
## [1] 77
```

```
rubalcaba
```

##	Mother	Treatment	Year	Clutch	Date Nest	Eggs	Hatchlings	Fledglings
## 1	3296489	LD	2015	1	14/04/2015	42	3	3
## 2	A703	LD	2015	1	08/04/2015	8	5	5
## 3	C038	LD	2015	1	08/04/2015	11	4	3
## 4	C141	LD	2015	1	28/05/2015	20	4	4
## 5	C524	LD	2015	1	05/04/2015	25	5	4
## 6	C663	LD	2015	1	07/04/2015	24	5	5
## 7	C699	LD	2015	1	12/05/2015	33	5	4
## 8	C708	LD	2015	1	08/04/2015	34	5	2
## 9	C723	LD	2015	1	10/04/2015	39	4	4
## 10	C853	LD	2015	1	08/04/2015	38	3	2
## 11	E013	LD	2015	1	19/04/2015	36	3	3
## 12	E117	LD	2015	1	08/04/2015	26	4	4
## 13	E152	LD	2015	1	07/04/2015	21	4	4
## 14	E201	LD	2015	1	07/04/2015	23	4	4
## 15	E209	LD	2015	1	15/04/2015	37	5	5
## 16	G114	LD	2015	1	07/04/2015	7	4	4
## 17	G118	LD	2015	1	03/06/2015	36	4	2
## 18	G224	LD	2015	1	07/04/2015	41	5	5

## 19	H035	LD 2015	1	20/05/2015	11	4	3	3
## 20	H036	LD 2015	1	21/05/2015	38	5	4	3
## 21	H069	LD 2015	1	27/05/2015	35	4	4	4
## 22	A703	LD 2015	2	25/05/2015	8	4	3	3
## 23	3156330	HD 2015	1	17/05/2015	45	5	5	3
## 24	3402230	HD 2015	1	07/04/2015	12	4	4	4
## 25	A663	HD 2015	1	06/04/2015	45	6	6	5
## 26	A903	HD 2015	1	06/04/2015	43	5	5	5
## 27	C005	HD 2015	1	28/05/2015	28	4	3	3
## 28	C014	HD 2015	1	06/05/2015	46	3	3	3
## 29	C024	HD 2015	1	07/05/2015	13	5	5	5
## 30	C080	HD 2015	1	22/05/2015	16	5	5	4
## 31	C469	HD 2015	1	05/04/2015	29	6	6	6
## 32	C525	HD 2015	1	07/04/2015	31	4	4	4
## 33	C582	HD 2015	1	17/05/2015	15	5	5	4
## 34	C851	HD 2015	1	07/04/2015	27	4	4	4
## 35	C852	HD 2015	1	08/04/2015	15	4	4	4
## 36	D464	HD 2015	1	13/05/2015	44	5	5	4
## 37	E200	HD 2015	1	18/05/2015	14	5	5	4
## 38	E300	HD 2015	1	07/05/2015	5	5	5	5
## 39	G275	HD 2015	1	07/04/2015	1	5	4	4
## 40	A663	HD 2015	2	24/05/2015	47	5	5	5
## 41	A903	HD 2015	2	21/05/2015	43	5	4	4
## 42	C038	HD 2015	2	19/05/2015	17	5	4	3
## 43	C525	HD 2015	2	19/05/2015	31	4	3	3
## 44	C851	HD 2015	2	21/05/2015	27	5	4	4
## 45	3156384	LD 2016	1	21/04/2016	34	4	4	4
## 46	3296489	LD 2016	1	15/05/2016	42	5	3	3
## 47	3402517	LD 2016	1	20/04/2016	9	4	4	4
## 48	C522	LD 2016	1	12/05/2016	37	5	5	4
## 49	C524	LD 2016	1	18/04/2016	19	5	5	5
## 50	C548	LD 2016	1	14/05/2016	7	5	5	5
## 51	C723	LD 2016	1	21/04/2016	39	5	5	5
## 52	E117	LD 2016	1	23/05/2016	26	5	5	5
## 53	E152	LD 2016	1	19/04/2016	21	5	5	5
## 54	E200	LD 2016	1	19/04/2016	8	4	4	4
## 55	E209	LD 2016	1	19/04/2016	38	5	5	5
## 56	G296	LD 2016	1	19/04/2016	18	5	4	4
## 57	G606	LD 2016	1	10/06/2016	23	3	3	2
## 58	H024	LD 2016	1	20/04/2016	24	5	5	5
## 59	H069	LD 2016	1	05/06/2016	33	4	4	4
## 60	H153	LD 2016	1	20/04/2016	20	6	4	3
## 61	H202	LD 2016	1	27/05/2016	25	5	5	4
## 62	3402517	LD 2016	2	04/06/2016	9	5	4	4
## 63	E152	LD 2016	2	07/06/2016	21	5	3	3
## 64	3156330	HD 2016	1	20/04/2016	45	5	5	5
## 65	3389073	HD 2016	1	20/04/2016	29	5	5	5
## 66	A663	HD 2016	1	20/04/2016	44	4	4	4
## 67	A903	HD 2016	1	19/04/2016	43	4	4	4
## 68	C005	HD 2016	1	20/04/2016	28	4	4	4
## 69	C024	HD 2016	1	20/04/2016	13	4	3	3
## 70	C080	HD 2016	1	21/04/2016	16	3	3	1
## 71	C170	HD 2016	1	19/04/2016	47	4	4	4
## 72	C525	HD 2016	1	20/04/2016	31	5	5	5

## 73	C527	HD 2016	1	20/04/2016	30	5	5	5
## 74	C716	HD 2016	1	27/04/2016	2	5	4	3
## 75	C851	HD 2016	1	04/06/2016	27	5	5	4
## 76	D706	HD 2016	1	07/06/2016	14	4	1	1
## 77	G294	HD 2016	1	23/04/2016	15	4	4	4
## 78	G611	HD 2016	1	24/04/2016	3	2	2	2
## 79	G615	HD 2016	1	04/06/2016	15	6	4	4
## 80	H152	HD 2016	1	22/04/2016	12	3	2	2
## 81	H203	HD 2016	1	20/04/2016	14	4	4	4
## 82	H324	HD 2016	1	27/05/2016	32	4	4	0
## 83	A663	HD 2016	2	05/06/2016	44	4	3	3
## 84	C080	HD 2016	2	10/06/2016	16	5	4	4
## 85	H203	HD 2016	2	06/06/2016	28	5	3	0
## 86	3389073	LD 2017	1	09/05/2017	25	5	4	4
## 87	3408094	LD 2017	1	15/04/2017	9	5	5	5
## 88	3410354	LD 2017	1	20/04/2017	40	5	5	5
## 89	3410366	LD 2017	1	15/04/2017	10	5	4	4
## 90	3411609	LD 2017	1	15/04/2017	33	5	5	5
## 91	3423966	LD 2017	1	20/05/2017	35	5	5	5
## 92	C014	LD 2017	1	14/04/2017	42	5	3	3
## 93	C522	LD 2017	1	07/05/2017	37	6	6	5
## 94	C548	LD 2017	1	15/04/2017	7	4	4	4
## 95	C853	LD 2017	1	19/04/2017	34	5	3	2
## 96	E227	LD 2017	1	12/05/2017	41	5	5	5
## 97	E301	LD 2017	1	29/04/2017	11	6	5	5
## 98	G147	LD 2017	1	15/04/2017	39	5	3	3
## 99	G166	LD 2017	1	15/04/2017	26	6	6	6
## 100	G296	LD 2017	1	15/04/2017	18	5	5	5
## 101	G849	LD 2017	1	08/05/2017	23	5	5	5
## 102	G961	LD 2017	1	14/04/2017	38	5	4	4
## 103	H047	LD 2017	1	16/04/2017	19	5	5	1
## 104	H153	LD 2017	1	15/05/2017	36	6	6	6
## 105	H901	LD 2017	1	16/04/2017	20	5	4	4
## 106	C548	LD 2017	2	03/06/2017	7	4	2	0
## 107	G166	LD 2017	2	42889	26	5	4	2
## 108	H901	LD 2017	2	03/06/2017	20	4	3	2
## 109	3410802	HD 2017	1	16/04/2017	27	5	5	5
## 110	C170	HD 2017	1	15/04/2017	47	5	5	5
## 111	C533	HD 2017	1	16/04/2017	14	4	2	1
## 112	C852	HD 2017	1	16/04/2017	15	5	5	5
## 113	E313	HD 2017	1	15/04/2017	16	4	4	4
## 114	G681	HD 2017	1	14/04/2017	13	5	5	5
## 115	G845	HD 2017	1	15/04/2017	32	5	5	5
## 116	G890	HD 2017	1	01/05/2017	46	5	3	3
## 117	H178	HD 2017	1	29/04/2017	29	5	5	5
## 118	H202	HD 2017	1	15/04/2017	12	5	5	5
## 119	H203	HD 2017	1	29/05/2017	44	5	3	2
## 120	H301	HD 2017	1	15/04/2017	4	5	4	4
## 121	H404	HD 2017	1	20/04/2017	1	3	2	2
## 122	H423	HD 2017	1	22/04/2017	2	4	4	4
## 123	H907	HD 2017	1	30/04/2017	6	4	4	4
## 124	C170	HD 2017	2	05/06/2017	47	4	3	2
## 125	C533	HD 2017	2	03/06/2017	17	4	4	4
## 126	H404	HD 2017	2	02/06/2017	1	5	4	1



## 127	3410362	LD 2018	1	25/04/2018	11	3	3	3
## 128	3410794	LD 2018	1	11/06/2018	38	5	4	2
## 129	C014	LD 2018	1	23/04/2018	41	5	3	3
## 130	C503	LD 2018	1	24/04/2018	19	4	4	4
## 131	C548	LD 2018	1	25/05/2018	7	5	4	4
## 132	C853	LD 2018	1	24/04/2018	34	5	5	5
## 133	G166	LD 2018	1	24/04/2018	26	6	4	4
## 134	G190	LD 2018	1	23/04/2018	21	5	5	5
## 135	G388	LD 2018	1	12/06/2018	35	5	5	4
## 136	G681	LD 2018	1	23/04/2018	9	5	5	5
## 137	G740	LD 2018	1	04/06/2018	26	5	4	3
## 138	H178	LD 2018	1	10/06/2018	33	5	5	3
## 139	H407	LD 2018	1	08/06/2018	23	5	3	2
## 140	H570	LD 2018	1	08/06/2018	37	4	3	3
## 141	H619 bis	LD 2018	1	16/05/2018	20	5	5	5
## 142	H680	LD 2018	1	24/04/2018	25	4	2	0
## 143	H903	LD 2018	1	25/04/2018	42	5	5	5
## 144	H907	LD 2018	1	17/05/2018	8	5	5	5
## 145	C503	LD 2018	2	05/06/2018	19	4	3	3
## 146	G190	LD 2018	2	09/06/2018	21	5	4	4
## 147	G681	LD 2018	2	06/06/2018	9	5	2	0
## 148	H680	LD 2018	2	16/05/2018	25	5	2	2
## 149	3410354	HD 2018	1	24/04/2018	48	5	4	4
## 150	3410802	HD 2018	1	17/05/2018	27	5	5	5
## 151	3423966	HD 2018	1	23/04/2018	5	5	4	4
## 152	3424705	HD 2018	1	24/05/2018	31	4	4	4
## 153	A663	HD 2018	1	25/04/2018	43	4	3	3
## 154	C170	HD 2018	1	23/04/2018	47	4	4	4
## 155	C533	HD 2018	1	23/04/2018	17	5	5	5
## 156	E227	HD 2018	1	25/04/2018	44	5	5	5
## 157	E301	HD 2018	1	25/04/2018	14	3	3	3
## 158	E313	HD 2018	1	24/04/2018	16	4	4	4
## 159	G296	HD 2018	1	25/04/2018	32	4	3	3
## 160	G847	HD 2018	1	23/04/2018	2	5	5	5
## 161	H423	HD 2018	1	19/05/2018	3	4	3	3
## 162	H558	HD 2018	1	16/05/2018	46	5	4	4
## 163	H676	HD 2018	1	10/06/2018	12	5	4	4
## 164	H689	HD 2018	1	18/05/2018	30	5	5	0
## 165	H812	HD 2018	1	18/05/2018	6	3	2	2
## 166	H902	HD 2018	1	24/04/2018	15	5	4	4
## 167	3410354	HD 2018	2	15/06/2018	48	5	4	3
## 168	3423966	HD 2018	2	08/06/2018	5	5	3	0
## 169	A663	HD 2018	2	15/06/2018	43	4	3	3
## 170	E301	HD 2018	2	08/06/2018	14	4	4	4
## 171	G296	HD 2018	2	06/06/2018	32	6	4	4
## 172	C548	LD 2019	1	20/04/2019	7	4	4	4
## 173	H907	LD 2019	2	26/04/2019	8	5	5	5
## 174	3410362	LD 2019	1	19/04/2019	11	4	3	3
## 175	G849	LD 2019	1	19/04/2019	18	5	4	1
## 176	C503	LD 2019	1	20/04/2019	19	5	5	5
## 177	C503	LD 2019	2	05/06/2019	19	3	3	2
## 178	E378	LD 2019	1	22/04/2019	20	4	4	4
## 179	G190	LD 2019	1	18/04/2019	21	6	6	6
## 180	E460	LD 2019	2	05/05/2019	22	5	5	5

## 181	H504	LD 2019	2	03/05/2019	24	5	5	5
## 182	H680	LD 2019	1	21/04/2019	25	3	3	3
## 183	H680	LD 2019	2	06/06/2019	25	4	3	3
## 184	H619 bis	LD 2019	2	11/05/2019	26	5	5	5
## 185	H178	LD 2019	1	03/05/2019	33	5	3	3
## 186	H178	LD 2019	2	16/06/2019	33	4	3	2
## 187	H558	LD 2019	1	19/04/2019	34	5	3	3
## 188	C014	LD 2019	1	18/04/2019	41	5	4	4
## 189	B256	LD 2019	2	07/05/2019	42	5	3	3
## 190	G847	HD 2019	1	03/04/2019	2	5	5	5
## 191	H540	HD 2019	1	19/04/2019	3	5	5	5
## 192	E666	HD 2019	1	23/04/2019	6	3	3	3
## 193	E614	HD 2019	2	29/05/2019	6	3	1	0
## 194	G681	HD 2019	1	17/04/2019	12	5	5	5
## 195	H813	HD 2019	1	20/04/2019	13	4	4	4
## 196	E301	HD 2019	1	20/04/2019	14	5	4	4
## 197	E534	HD 2019	1	30/04/2019	15	6	5	5
## 198	E313	HD 2019	1	21/04/2019	16	5	3	3
## 199	E313	HD 2019	2	06/06/2019	16	4	4	1
## 200	C533	HD 2019	3	11/05/2019	17	5	5	5
## 201	G166	HD 2019	2	01/05/2019	28	6	6	6
## 202	3424705	HD 2019	1	18/04/2019	31	5	5	3
## 203	3424705	HD 2019	2	05/06/2019	31	4	3	3
## 204	H770	HD 2019	2	15/05/2019	43	4	4	4
## 205	E227	HD 2019	2	04/06/2019	44	4	2	2
## 206	H451	HD 2019	1	18/04/2019	45	5	4	3
## 207	G849	HD 2019	2	31/05/2019	45	4	3	3
## 208	B337	HD 2019	2	01/06/2019	46	3	3	2
## 209	C170	HD 2019	1	19/04/2019	47	5	5	5
## 210	B336	HD 2019	2	02/06/2019	47	4	4	2

##	Males	Females	deaths	H2Fdeaths	E2Hdeaths	hatchsurvivalrate	survivalrate
## 1	1	2	0	0	0	1.0000000	1.0000000
## 2	4	1	0	0	0	1.0000000	1.0000000
## 3	1	2	1	0	1	0.7500000	0.7500000
## 4	2	2	0	0	0	1.0000000	1.0000000
## 5	3	1	1	0	1	0.8000000	0.8000000
## 6	3	2	0	0	0	1.0000000	1.0000000
## 7	3	1	1	0	1	0.8000000	0.8000000
## 8	0	2	3	0	3	0.4000000	0.4000000
## 9	1	3	0	0	0	1.0000000	1.0000000
## 10	2	0	1	0	1	0.6666667	0.6666667
## 11	2	1	0	0	0	1.0000000	1.0000000
## 12	4	0	0	0	0	1.0000000	1.0000000
## 13	1	3	0	0	0	1.0000000	1.0000000
## 14	0	4	0	0	0	1.0000000	1.0000000
## 15	2	3	0	0	0	1.0000000	1.0000000
## 16	3	1	0	0	0	1.0000000	1.0000000
## 17	3	0	2	1	1	0.7500000	0.5000000
## 18	4	1	0	0	0	1.0000000	1.0000000
## 19	2	1	1	0	1	0.7500000	0.7500000
## 20	1	3	2	1	1	0.8000000	0.6000000
## 21	1	3	0	0	0	1.0000000	1.0000000
## 22	2	1	1	0	1	0.7500000	0.7500000
## 23	2	3	2	2	0	1.0000000	0.6000000

## 24	1	3	0	0	0	1.0000000	1.0000000
## 25	3	3	1	1	0	1.0000000	0.8333333
## 26	2	3	0	0	0	1.0000000	1.0000000
## 27	0	3	1	0	1	0.7500000	0.7500000
## 28	2	1	0	0	0	1.0000000	1.0000000
## 29	1	4	0	0	0	1.0000000	1.0000000
## 30	3	2	1	1	0	1.0000000	0.8000000
## 31	3	3	0	0	0	1.0000000	1.0000000
## 32	3	1	0	0	0	1.0000000	1.0000000
## 33	1	4	1	1	0	1.0000000	0.8000000
## 34	2	2	0	0	0	1.0000000	1.0000000
## 35	1	3	0	0	0	1.0000000	1.0000000
## 36	2	3	1	1	0	1.0000000	0.8000000
## 37	1	4	1	1	0	1.0000000	0.8000000
## 38	1	4	0	0	0	1.0000000	1.0000000
## 39	3	1	1	0	1	0.8000000	0.8000000
## 40	2	3	0	0	0	1.0000000	1.0000000
## 41	1	3	1	0	1	0.8000000	0.8000000
## 42	2	2	2	1	1	0.8000000	0.6000000
## 43	1	2	1	0	1	0.7500000	0.7500000
## 44	1	3	1	0	1	0.8000000	0.8000000
## 45	3	1	0	0	0	1.0000000	1.0000000
## 46	2	1	2	0	2	0.6000000	0.6000000
## 47	2	2	0	0	0	1.0000000	1.0000000
## 48	4	1	1	1	0	1.0000000	0.8000000
## 49	1	4	0	0	0	1.0000000	1.0000000
## 50	4	1	0	0	0	1.0000000	1.0000000
## 51	3	2	0	0	0	1.0000000	1.0000000
## 52	3	2	0	0	0	1.0000000	1.0000000
## 53	1	4	0	0	0	1.0000000	1.0000000
## 54	1	3	0	0	0	1.0000000	1.0000000
## 55	2	3	0	0	0	1.0000000	1.0000000
## 56	4	0	1	0	1	0.8000000	0.8000000
## 57	2	1	1	1	0	1.0000000	0.6666667
## 58	1	4	0	0	0	1.0000000	1.0000000
## 59	2	2	0	0	0	1.0000000	1.0000000
## 60	3	1	3	1	2	0.6666667	0.5000000
## 61	2	2	1	1	0	1.0000000	0.8000000
## 62	1	3	1	0	1	0.8000000	0.8000000
## 63	2	1	2	0	2	0.6000000	0.6000000
## 64	4	1	0	0	0	1.0000000	1.0000000
## 65	4	1	0	0	0	1.0000000	1.0000000
## 66	1	3	0	0	0	1.0000000	1.0000000
## 67	2	2	0	0	0	1.0000000	1.0000000
## 68	2	2	0	0	0	1.0000000	1.0000000
## 69	1	2	1	0	1	0.7500000	0.7500000
## 70	1	2	2	2	0	1.0000000	0.3333333
## 71	1	3	0	0	0	1.0000000	1.0000000
## 72	1	4	0	0	0	1.0000000	1.0000000
## 73	2	3	0	0	0	1.0000000	1.0000000
## 74	3	1	2	1	1	0.8000000	0.6000000
## 75	3	2	1	1	0	1.0000000	0.8000000
## 76	0	1	3	0	3	0.2500000	0.2500000
## 77	1	3	0	0	0	1.0000000	1.0000000

## 78	1	1	0	0	0	1.0000000	1.0000000
## 79	0	4	2	0	2	0.6666667	0.6666667
## 80	0	2	1	0	1	0.6666667	0.6666667
## 81	1	3	0	0	0	1.0000000	1.0000000
## 82	2	2	4	4	0	1.0000000	0.0000000
## 83	1	2	1	0	1	0.7500000	0.7500000
## 84	1	3	1	0	1	0.8000000	0.8000000
## 85	2	1	5	3	2	0.6000000	0.0000000
## 86	3	1	1	0	1	0.8000000	0.8000000
## 87	3	2	0	0	0	1.0000000	1.0000000
## 88	3	2	0	0	0	1.0000000	1.0000000
## 89	0	4	1	0	1	0.8000000	0.8000000
## 90	3	2	0	0	0	1.0000000	1.0000000
## 91	3	2	0	0	0	1.0000000	1.0000000
## 92	2	1	2	0	2	0.6000000	0.6000000
## 93	3	3	1	1	0	1.0000000	0.8333333
## 94	4	0	0	0	0	1.0000000	1.0000000
## 95	1	2	3	1	2	0.6000000	0.4000000
## 96	3	2	0	0	0	1.0000000	1.0000000
## 97	3	2	1	0	1	0.8333333	0.8333333
## 98	2	1	2	0	2	0.6000000	0.6000000
## 99	3	3	0	0	0	1.0000000	1.0000000
## 100	3	2	0	0	0	1.0000000	1.0000000
## 101	2	3	0	0	0	1.0000000	1.0000000
## 102	2	2	1	0	1	0.8000000	0.8000000
## 103	2	3	4	4	0	1.0000000	0.2000000
## 104	1	5	0	0	0	1.0000000	1.0000000
## 105	1	3	1	0	1	0.8000000	0.8000000
## 106	2	0	4	2	2	0.5000000	0.0000000
## 107	2	2	3	2	1	0.8000000	0.4000000
## 108	1	2	2	1	1	0.7500000	0.5000000
## 109	2	3	0	0	0	1.0000000	1.0000000
## 110	3	2	0	0	0	1.0000000	1.0000000
## 111	2	0	3	1	2	0.5000000	0.2500000
## 112	2	3	0	0	0	1.0000000	1.0000000
## 113	3	1	0	0	0	1.0000000	1.0000000
## 114	4	1	0	0	0	1.0000000	1.0000000
## 115	3	2	0	0	0	1.0000000	1.0000000
## 116	1	2	2	0	2	0.6000000	0.6000000
## 117	2	3	0	0	0	1.0000000	1.0000000
## 118	2	3	0	0	0	1.0000000	1.0000000
## 119	1	2	3	1	2	0.6000000	0.4000000
## 120	2	2	1	0	1	0.8000000	0.8000000
## 121	0	2	1	0	1	0.6666667	0.6666667
## 122	1	3	0	0	0	1.0000000	1.0000000
## 123	3	1	0	0	0	1.0000000	1.0000000
## 124	1	2	2	1	1	0.7500000	0.5000000
## 125	2	2	0	0	0	1.0000000	1.0000000
## 126	3	1	4	3	1	0.8000000	0.2000000
## 127	3	0	0	0	0	1.0000000	1.0000000
## 128	4	0	3	2	1	0.8000000	0.4000000
## 129	3	0	2	0	2	0.6000000	0.6000000
## 130	2	2	0	0	0	1.0000000	1.0000000
## 131	1	3	1	0	1	0.8000000	0.8000000

## 132	2	3	0	0	0	1.0000000	1.0000000
## 133	3	1	2	0	2	0.6666667	0.6666667
## 134	2	3	0	0	0	1.0000000	1.0000000
## 135	3	2	1	1	0	1.0000000	0.8000000
## 136	3	2	0	0	0	1.0000000	1.0000000
## 137	2	2	2	1	1	0.8000000	0.6000000
## 138	1	4	2	2	0	1.0000000	0.6000000
## 139	2	1	3	1	2	0.6000000	0.4000000
## 140	1	2	1	0	1	0.7500000	0.7500000
## 141	3	2	0	0	0	1.0000000	1.0000000
## 142	1	1	4	2	2	0.5000000	0.0000000
## 143	2	3	0	0	0	1.0000000	1.0000000
## 144	1	4	0	0	0	1.0000000	1.0000000
## 145	2	1	1	0	1	0.7500000	0.7500000
## 146	2	2	1	0	1	0.8000000	0.8000000
## 147	2	0	5	2	3	0.4000000	0.0000000
## 148	1	1	3	0	3	0.4000000	0.4000000
## 149	2	2	1	0	1	0.8000000	0.8000000
## 150	4	1	0	0	0	1.0000000	1.0000000
## 151	1	3	1	0	1	0.8000000	0.8000000
## 152	1	3	0	0	0	1.0000000	1.0000000
## 153	1	2	1	0	1	0.7500000	0.7500000
## 154	3	1	0	0	0	1.0000000	1.0000000
## 155	3	2	0	0	0	1.0000000	1.0000000
## 156	2	3	0	0	0	1.0000000	1.0000000
## 157	2	1	0	0	0	1.0000000	1.0000000
## 158	2	2	0	0	0	1.0000000	1.0000000
## 159	1	2	1	0	1	0.7500000	0.7500000
## 160	3	2	0	0	0	1.0000000	1.0000000
## 161	0	3	1	0	1	0.7500000	0.7500000
## 162	1	3	1	0	1	0.8000000	0.8000000
## 163	0	4	1	0	1	0.8000000	0.8000000
## 164	3	2	5	5	0	1.0000000	0.0000000
## 165	1	1	1	0	1	0.6666667	0.6666667
## 166	3	1	1	0	1	0.8000000	0.8000000
## 167	0	4	2	1	1	0.8000000	0.6000000
## 168	0	3	5	3	2	0.6000000	0.0000000
## 169	2	1	1	0	1	0.7500000	0.7500000
## 170	4	0	0	0	0	1.0000000	1.0000000
## 171	3	1	2	0	2	0.6666667	0.6666667
## 172	3	1	0	0	0	1.0000000	1.0000000
## 173	3	2	0	0	0	1.0000000	1.0000000
## 174	2	1	1	0	1	0.7500000	0.7500000
## 175	4	0	4	3	1	0.8000000	0.2000000
## 176	2	3	0	0	0	1.0000000	1.0000000
## 177	1	2	1	1	0	1.0000000	0.6666667
## 178	3	1	0	0	0	1.0000000	1.0000000
## 179	3	3	0	0	0	1.0000000	1.0000000
## 180	2	3	0	0	0	1.0000000	1.0000000
## 181	3	2	0	0	0	1.0000000	1.0000000
## 182	1	2	0	0	0	1.0000000	1.0000000
## 183	3	0	1	0	1	0.7500000	0.7500000
## 184	0	5	0	0	0	1.0000000	1.0000000
## 185	2	1	2	0	2	0.6000000	0.6000000

## 186	3	0	2	1	1	0.7500000	0.5000000
## 187	1	2	2	0	2	0.6000000	0.6000000
## 188	1	3	1	0	1	0.8000000	0.8000000
## 189	3	1	2	0	2	0.6000000	0.6000000
## 190	4	1	0	0	0	1.0000000	1.0000000
## 191	3	2	0	0	0	1.0000000	1.0000000
## 192	1	2	0	0	0	1.0000000	1.0000000
## 193	0	1	3	1	2	0.3333333	0.0000000
## 194	1	4	0	0	0	1.0000000	1.0000000
## 195	1	3	0	0	0	1.0000000	1.0000000
## 196	0	4	1	0	1	0.8000000	0.8000000
## 197	1	4	1	0	1	0.8333333	0.8333333
## 198	2	1	2	0	2	0.6000000	0.6000000
## 199	1	3	3	3	0	1.0000000	0.2500000
## 200	3	2	0	0	0	1.0000000	1.0000000
## 201	1	5	0	0	0	1.0000000	1.0000000
## 202	3	3	2	2	0	1.0000000	0.6000000
## 203	2	1	1	0	1	0.7500000	0.7500000
## 204	1	3	0	0	0	1.0000000	1.0000000
## 205	2	0	2	0	2	0.5000000	0.5000000
## 206	2	2	2	1	1	0.8000000	0.6000000
## 207	2	1	1	0	1	0.7500000	0.7500000
## 208	1	2	1	1	0	1.0000000	0.6666667
## 209	1	4	0	0	0	1.0000000	1.0000000
## 210	3	1	2	2	0	1.0000000	0.5000000
##	femaleratio		femaledeaths				
## 1	2.0000000		0.0000000				
## 2	0.2500000		0.0000000				
## 3	2.0000000		2.0000000				
## 4	1.0000000		0.0000000				
## 5	0.3333333		0.3333333				
## 6	0.6666667		0.0000000				
## 7	0.3333333		0.3333333				
## 8	Inf		Inf				
## 9	3.0000000		0.0000000				
## 10	0.0000000		0.0000000				
## 11	0.5000000		0.0000000				
## 12	0.0000000		0.0000000				
## 13	3.0000000		0.0000000				
## 14	Inf		NaN				
## 15	1.5000000		0.0000000				
## 16	0.3333333		0.0000000				
## 17	0.0000000		0.0000000				
## 18	0.2500000		0.0000000				
## 19	0.5000000		0.5000000				
## 20	3.0000000		6.0000000				
## 21	3.0000000		0.0000000				
## 22	0.5000000		0.5000000				
## 23	1.5000000		3.0000000				
## 24	3.0000000		0.0000000				
## 25	1.0000000		1.0000000				
## 26	1.5000000		0.0000000				
## 27	Inf		Inf				
## 28	0.5000000		0.0000000				

## 29	4.0000000	0.0000000
## 30	0.6666667	0.6666667
## 31	1.0000000	0.0000000
## 32	0.3333333	0.0000000
## 33	4.0000000	4.0000000
## 34	1.0000000	0.0000000
## 35	3.0000000	0.0000000
## 36	1.5000000	1.5000000
## 37	4.0000000	4.0000000
## 38	4.0000000	0.0000000
## 39	0.3333333	0.3333333
## 40	1.5000000	0.0000000
## 41	3.0000000	3.0000000
## 42	1.0000000	2.0000000
## 43	2.0000000	2.0000000
## 44	3.0000000	3.0000000
## 45	0.3333333	0.0000000
## 46	0.5000000	1.0000000
## 47	1.0000000	0.0000000
## 48	0.2500000	0.2500000
## 49	4.0000000	0.0000000
## 50	0.2500000	0.0000000
## 51	0.6666667	0.0000000
## 52	0.6666667	0.0000000
## 53	4.0000000	0.0000000
## 54	3.0000000	0.0000000
## 55	1.5000000	0.0000000
## 56	0.0000000	0.0000000
## 57	0.5000000	0.5000000
## 58	4.0000000	0.0000000
## 59	1.0000000	0.0000000
## 60	0.3333333	1.0000000
## 61	1.0000000	1.0000000
## 62	3.0000000	3.0000000
## 63	0.5000000	1.0000000
## 64	0.2500000	0.0000000
## 65	0.2500000	0.0000000
## 66	3.0000000	0.0000000
## 67	1.0000000	0.0000000
## 68	1.0000000	0.0000000
## 69	2.0000000	2.0000000
## 70	2.0000000	4.0000000
## 71	3.0000000	0.0000000
## 72	4.0000000	0.0000000
## 73	1.5000000	0.0000000
## 74	0.3333333	0.6666667
## 75	0.6666667	0.6666667
## 76	Inf	Inf
## 77	3.0000000	0.0000000
## 78	1.0000000	0.0000000
## 79	Inf	Inf
## 80	Inf	Inf
## 81	3.0000000	0.0000000
## 82	1.0000000	4.0000000

## 83	2.0000000	2.0000000
## 84	3.0000000	3.0000000
## 85	0.5000000	2.5000000
## 86	0.3333333	0.3333333
## 87	0.6666667	0.0000000
## 88	0.6666667	0.0000000
## 89	Inf	Inf
## 90	0.6666667	0.0000000
## 91	0.6666667	0.0000000
## 92	0.5000000	1.0000000
## 93	1.0000000	1.0000000
## 94	0.0000000	0.0000000
## 95	2.0000000	6.0000000
## 96	0.6666667	0.0000000
## 97	0.6666667	0.6666667
## 98	0.5000000	1.0000000
## 99	1.0000000	0.0000000
## 100	0.6666667	0.0000000
## 101	1.5000000	0.0000000
## 102	1.0000000	1.0000000
## 103	1.5000000	6.0000000
## 104	5.0000000	0.0000000
## 105	3.0000000	3.0000000
## 106	0.0000000	0.0000000
## 107	1.0000000	3.0000000
## 108	2.0000000	4.0000000
## 109	1.5000000	0.0000000
## 110	0.6666667	0.0000000
## 111	0.0000000	0.0000000
## 112	1.5000000	0.0000000
## 113	0.3333333	0.0000000
## 114	0.2500000	0.0000000
## 115	0.6666667	0.0000000
## 116	2.0000000	4.0000000
## 117	1.5000000	0.0000000
## 118	1.5000000	0.0000000
## 119	2.0000000	6.0000000
## 120	1.0000000	1.0000000
## 121	Inf	Inf
## 122	3.0000000	0.0000000
## 123	0.3333333	0.0000000
## 124	2.0000000	4.0000000
## 125	1.0000000	0.0000000
## 126	0.3333333	1.3333333
## 127	0.0000000	0.0000000
## 128	0.0000000	0.0000000
## 129	0.0000000	0.0000000
## 130	1.0000000	0.0000000
## 131	3.0000000	3.0000000
## 132	1.5000000	0.0000000
## 133	0.3333333	0.6666667
## 134	1.5000000	0.0000000
## 135	0.6666667	0.6666667
## 136	0.6666667	0.0000000



## 137	1.0000000	2.0000000
## 138	4.0000000	8.0000000
## 139	0.5000000	1.5000000
## 140	2.0000000	2.0000000
## 141	0.6666667	0.0000000
## 142	1.0000000	4.0000000
## 143	1.5000000	0.0000000
## 144	4.0000000	0.0000000
## 145	0.5000000	0.5000000
## 146	1.0000000	1.0000000
## 147	0.0000000	0.0000000
## 148	1.0000000	3.0000000
## 149	1.0000000	1.0000000
## 150	0.2500000	0.0000000
## 151	3.0000000	3.0000000
## 152	3.0000000	0.0000000
## 153	2.0000000	2.0000000
## 154	0.3333333	0.0000000
## 155	0.6666667	0.0000000
## 156	1.5000000	0.0000000
## 157	0.5000000	0.0000000
## 158	1.0000000	0.0000000
## 159	2.0000000	2.0000000
## 160	0.6666667	0.0000000
## 161	Inf	Inf
## 162	3.0000000	3.0000000
## 163	Inf	Inf
## 164	0.6666667	3.3333333
## 165	1.0000000	1.0000000
## 166	0.3333333	0.3333333
## 167	Inf	Inf
## 168	Inf	Inf
## 169	0.5000000	0.5000000
## 170	0.0000000	0.0000000
## 171	0.3333333	0.6666667
## 172	0.3333333	0.0000000
## 173	0.6666667	0.0000000
## 174	0.5000000	0.5000000
## 175	0.0000000	0.0000000
## 176	1.5000000	0.0000000
## 177	2.0000000	2.0000000
## 178	0.3333333	0.0000000
## 179	1.0000000	0.0000000
## 180	1.5000000	0.0000000
## 181	0.6666667	0.0000000
## 182	2.0000000	0.0000000
## 183	0.0000000	0.0000000
## 184	Inf	NaN
## 185	0.5000000	1.0000000
## 186	0.0000000	0.0000000
## 187	2.0000000	4.0000000
## 188	3.0000000	3.0000000
## 189	0.3333333	0.6666667
## 190	0.2500000	0.0000000

## 191	0.6666667	0.0000000
## 192	2.0000000	0.0000000
## 193	Inf	Inf
## 194	4.0000000	0.0000000
## 195	3.0000000	0.0000000
## 196	Inf	Inf
## 197	4.0000000	4.0000000
## 198	0.5000000	1.0000000
## 199	3.0000000	9.0000000
## 200	0.6666667	0.0000000
## 201	5.0000000	0.0000000
## 202	1.0000000	2.0000000
## 203	0.5000000	0.5000000
## 204	3.0000000	0.0000000
## 205	0.0000000	0.0000000
## 206	1.0000000	2.0000000
## 207	0.5000000	0.5000000
## 208	2.0000000	2.0000000
## 209	4.0000000	0.0000000
## 210	0.3333333	0.6666667

# rubalcaba

##	Mother	Treatment	Year	Clutch	Date Nest	Eggs	Hatchlings	Fledglings
## 1	3296489	LD	2015	1	14/04/2015	42	3	3
## 2	A703	LD	2015	1	08/04/2015	8	5	5
## 3	C038	LD	2015	1	08/04/2015	11	4	3
## 4	C141	LD	2015	1	28/05/2015	20	4	4
## 5	C524	LD	2015	1	05/04/2015	25	5	4
## 6	C663	LD	2015	1	07/04/2015	24	5	5
## 7	C699	LD	2015	1	12/05/2015	33	5	4
## 8	C708	LD	2015	1	08/04/2015	34	5	2
## 9	C723	LD	2015	1	10/04/2015	39	4	4
## 10	C853	LD	2015	1	08/04/2015	38	3	2
## 11	E013	LD	2015	1	19/04/2015	36	3	3
## 12	E117	LD	2015	1	08/04/2015	26	4	4
## 13	E152	LD	2015	1	07/04/2015	21	4	4
## 14	E201	LD	2015	1	07/04/2015	23	4	4
## 15	E209	LD	2015	1	15/04/2015	37	5	5
## 16	G114	LD	2015	1	07/04/2015	7	4	4
## 17	G118	LD	2015	1	03/06/2015	36	4	3
## 18	G224	LD	2015	1	07/04/2015	41	5	5
## 19	H035	LD	2015	1	20/05/2015	11	4	3
## 20	H036	LD	2015	1	21/05/2015	38	5	4
## 21	H069	LD	2015	1	27/05/2015	35	4	4
## 22	A703	LD	2015	2	25/05/2015	8	4	3
## 23	3156330	HD	2015	1	17/05/2015	45	5	5
## 24	3402230	HD	2015	1	07/04/2015	12	4	4
## 25	A663	HD	2015	1	06/04/2015	45	6	6
## 26	A903	HD	2015	1	06/04/2015	43	5	5
## 27	C005	HD	2015	1	28/05/2015	28	4	3
## 28	C014	HD	2015	1	06/05/2015	46	3	3
## 29	C024	HD	2015	1	07/05/2015	13	5	5
## 30	C080	HD	2015	1	22/05/2015	16	5	5
## 31	C469	HD	2015	1	05/04/2015	29	6	6

## 32	C525	HD 2015	1 07/04/2015	31	4	4	4
## 33	C582	HD 2015	1 17/05/2015	15	5	5	4
## 34	C851	HD 2015	1 07/04/2015	27	4	4	4
## 35	C852	HD 2015	1 08/04/2015	15	4	4	4
## 36	D464	HD 2015	1 13/05/2015	44	5	5	4
## 37	E200	HD 2015	1 18/05/2015	14	5	5	4
## 38	E300	HD 2015	1 07/05/2015	5	5	5	5
## 39	G275	HD 2015	1 07/04/2015	1	5	4	4
## 40	A663	HD 2015	2 24/05/2015	47	5	5	5
## 41	A903	HD 2015	2 21/05/2015	43	5	4	4
## 42	C038	HD 2015	2 19/05/2015	17	5	4	3
## 43	C525	HD 2015	2 19/05/2015	31	4	3	3
## 44	C851	HD 2015	2 21/05/2015	27	5	4	4
## 45	3156384	LD 2016	1 21/04/2016	34	4	4	4
## 46	3296489	LD 2016	1 15/05/2016	42	5	3	3
## 47	3402517	LD 2016	1 20/04/2016	9	4	4	4
## 48	C522	LD 2016	1 12/05/2016	37	5	5	4
## 49	C524	LD 2016	1 18/04/2016	19	5	5	5
## 50	C548	LD 2016	1 14/05/2016	7	5	5	5
## 51	C723	LD 2016	1 21/04/2016	39	5	5	5
## 52	E117	LD 2016	1 23/05/2016	26	5	5	5
## 53	E152	LD 2016	1 19/04/2016	21	5	5	5
## 54	E200	LD 2016	1 19/04/2016	8	4	4	4
## 55	E209	LD 2016	1 19/04/2016	38	5	5	5
## 56	G296	LD 2016	1 19/04/2016	18	5	4	4
## 57	G606	LD 2016	1 10/06/2016	23	3	3	2
## 58	H024	LD 2016	1 20/04/2016	24	5	5	5
## 59	H069	LD 2016	1 05/06/2016	33	4	4	4
## 60	H153	LD 2016	1 20/04/2016	20	6	4	3
## 61	H202	LD 2016	1 27/05/2016	25	5	5	4
## 62	3402517	LD 2016	2 04/06/2016	9	5	4	4
## 63	E152	LD 2016	2 07/06/2016	21	5	3	3
## 64	3156330	HD 2016	1 20/04/2016	45	5	5	5
## 65	3389073	HD 2016	1 20/04/2016	29	5	5	5
## 66	A663	HD 2016	1 20/04/2016	44	4	4	4
## 67	A903	HD 2016	1 19/04/2016	43	4	4	4
## 68	C005	HD 2016	1 20/04/2016	28	4	4	4
## 69	C024	HD 2016	1 20/04/2016	13	4	3	3
## 70	C080	HD 2016	1 21/04/2016	16	3	3	1
## 71	C170	HD 2016	1 19/04/2016	47	4	4	4
## 72	C525	HD 2016	1 20/04/2016	31	5	5	5
## 73	C527	HD 2016	1 20/04/2016	30	5	5	5
## 74	C716	HD 2016	1 27/04/2016	2	5	4	3
## 75	C851	HD 2016	1 04/06/2016	27	5	5	4
## 76	D706	HD 2016	1 07/06/2016	14	4	1	1
## 77	G294	HD 2016	1 23/04/2016	15	4	4	4
## 78	G611	HD 2016	1 24/04/2016	3	2	2	2
## 79	G615	HD 2016	1 04/06/2016	15	6	4	4
## 80	H152	HD 2016	1 22/04/2016	12	3	2	2
## 81	H203	HD 2016	1 20/04/2016	14	4	4	4
## 82	H324	HD 2016	1 27/05/2016	32	4	4	0
## 83	A663	HD 2016	2 05/06/2016	44	4	3	3
## 84	C080	HD 2016	2 10/06/2016	16	5	4	4
## 85	H203	HD 2016	2 06/06/2016	28	5	3	0

## 86	3389073	LD 2017	1 09/05/2017	25	5	4	4
## 87	3408094	LD 2017	1 15/04/2017	9	5	5	5
## 88	3410354	LD 2017	1 20/04/2017	40	5	5	5
## 89	3410366	LD 2017	1 15/04/2017	10	5	4	4
## 90	3411609	LD 2017	1 15/04/2017	33	5	5	5
## 91	3423966	LD 2017	1 20/05/2017	35	5	5	5
## 92	C014	LD 2017	1 14/04/2017	42	5	3	3
## 93	C522	LD 2017	1 07/05/2017	37	6	6	5
## 94	C548	LD 2017	1 15/04/2017	7	4	4	4
## 95	C853	LD 2017	1 19/04/2017	34	5	3	2
## 96	E227	LD 2017	1 12/05/2017	41	5	5	5
## 97	E301	LD 2017	1 29/04/2017	11	6	5	5
## 98	G147	LD 2017	1 15/04/2017	39	5	3	3
## 99	G166	LD 2017	1 15/04/2017	26	6	6	6
## 100	G296	LD 2017	1 15/04/2017	18	5	5	5
## 101	G849	LD 2017	1 08/05/2017	23	5	5	5
## 102	G961	LD 2017	1 14/04/2017	38	5	4	4
## 103	H047	LD 2017	1 16/04/2017	19	5	5	1
## 104	H153	LD 2017	1 15/05/2017	36	6	6	6
## 105	H901	LD 2017	1 16/04/2017	20	5	4	4
## 106	C548	LD 2017	2 03/06/2017	7	4	2	0
## 107	G166	LD 2017	2 42889	26	5	4	2
## 108	H901	LD 2017	2 03/06/2017	20	4	3	2
## 109	3410802	HD 2017	1 16/04/2017	27	5	5	5
## 110	C170	HD 2017	1 15/04/2017	47	5	5	5
## 111	C533	HD 2017	1 16/04/2017	14	4	2	1
## 112	C852	HD 2017	1 16/04/2017	15	5	5	5
## 113	E313	HD 2017	1 15/04/2017	16	4	4	4
## 114	G681	HD 2017	1 14/04/2017	13	5	5	5
## 115	G845	HD 2017	1 15/04/2017	32	5	5	5
## 116	G890	HD 2017	1 01/05/2017	46	5	3	3
## 117	H178	HD 2017	1 29/04/2017	29	5	5	5
## 118	H202	HD 2017	1 15/04/2017	12	5	5	5
## 119	H203	HD 2017	1 29/05/2017	44	5	3	2
## 120	H301	HD 2017	1 15/04/2017	4	5	4	4
## 121	H404	HD 2017	1 20/04/2017	1	3	2	2
## 122	H423	HD 2017	1 22/04/2017	2	4	4	4
## 123	H907	HD 2017	1 30/04/2017	6	4	4	4
## 124	C170	HD 2017	2 05/06/2017	47	4	3	2
## 125	C533	HD 2017	2 03/06/2017	17	4	4	4
## 126	H404	HD 2017	2 02/06/2017	1	5	4	1
## 127	3410362	LD 2018	1 25/04/2018	11	3	3	3
## 128	3410794	LD 2018	1 11/06/2018	38	5	4	2
## 129	C014	LD 2018	1 23/04/2018	41	5	3	3
## 130	C503	LD 2018	1 24/04/2018	19	4	4	4
## 131	C548	LD 2018	1 25/05/2018	7	5	4	4
## 132	C853	LD 2018	1 24/04/2018	34	5	5	5
## 133	G166	LD 2018	1 24/04/2018	26	6	4	4
## 134	G190	LD 2018	1 23/04/2018	21	5	5	5
## 135	G388	LD 2018	1 12/06/2018	35	5	5	4
## 136	G681	LD 2018	1 23/04/2018	9	5	5	5
## 137	G740	LD 2018	1 04/06/2018	26	5	4	3
## 138	H178	LD 2018	1 10/06/2018	33	5	5	3
## 139	H407	LD 2018	1 08/06/2018	23	5	3	2

## 140	H570	LD 2018	1 08/06/2018	37	4	3	3
## 141	H619 bis	LD 2018	1 16/05/2018	20	5	5	5
## 142	H680	LD 2018	1 24/04/2018	25	4	2	0
## 143	H903	LD 2018	1 25/04/2018	42	5	5	5
## 144	H907	LD 2018	1 17/05/2018	8	5	5	5
## 145	C503	LD 2018	2 05/06/2018	19	4	3	3
## 146	G190	LD 2018	2 09/06/2018	21	5	4	4
## 147	G681	LD 2018	2 06/06/2018	9	5	2	0
## 148	H680	LD 2018	2 16/05/2018	25	5	2	2
## 149	3410354	HD 2018	1 24/04/2018	48	5	4	4
## 150	3410802	HD 2018	1 17/05/2018	27	5	5	5
## 151	3423966	HD 2018	1 23/04/2018	5	5	4	4
## 152	3424705	HD 2018	1 24/05/2018	31	4	4	4
## 153	A663	HD 2018	1 25/04/2018	43	4	3	3
## 154	C170	HD 2018	1 23/04/2018	47	4	4	4
## 155	C533	HD 2018	1 23/04/2018	17	5	5	5
## 156	E227	HD 2018	1 25/04/2018	44	5	5	5
## 157	E301	HD 2018	1 25/04/2018	14	3	3	3
## 158	E313	HD 2018	1 24/04/2018	16	4	4	4
## 159	G296	HD 2018	1 25/04/2018	32	4	3	3
## 160	G847	HD 2018	1 23/04/2018	2	5	5	5
## 161	H423	HD 2018	1 19/05/2018	3	4	3	3
## 162	H558	HD 2018	1 16/05/2018	46	5	4	4
## 163	H676	HD 2018	1 10/06/2018	12	5	4	4
## 164	H689	HD 2018	1 18/05/2018	30	5	5	0
## 165	H812	HD 2018	1 18/05/2018	6	3	2	2
## 166	H902	HD 2018	1 24/04/2018	15	5	4	4
## 167	3410354	HD 2018	2 15/06/2018	48	5	4	3
## 168	3423966	HD 2018	2 08/06/2018	5	5	3	0
## 169	A663	HD 2018	2 15/06/2018	43	4	3	3
## 170	E301	HD 2018	2 08/06/2018	14	4	4	4
## 171	G296	HD 2018	2 06/06/2018	32	6	4	4
## 172	C548	LD 2019	1 20/04/2019	7	4	4	4
## 173	H907	LD 2019	2 26/04/2019	8	5	5	5
## 174	3410362	LD 2019	1 19/04/2019	11	4	3	3
## 175	G849	LD 2019	1 19/04/2019	18	5	4	1
## 176	C503	LD 2019	1 20/04/2019	19	5	5	5
## 177	C503	LD 2019	2 05/06/2019	19	3	3	2
## 178	E378	LD 2019	1 22/04/2019	20	4	4	4
## 179	G190	LD 2019	1 18/04/2019	21	6	6	6
## 180	E460	LD 2019	2 05/05/2019	22	5	5	5
## 181	H504	LD 2019	2 03/05/2019	24	5	5	5
## 182	H680	LD 2019	1 21/04/2019	25	3	3	3
## 183	H680	LD 2019	2 06/06/2019	25	4	3	3
## 184	H619 bis	LD 2019	2 11/05/2019	26	5	5	5
## 185	H178	LD 2019	1 03/05/2019	33	5	3	3
## 186	H178	LD 2019	2 16/06/2019	33	4	3	2
## 187	H558	LD 2019	1 19/04/2019	34	5	3	3
## 188	C014	LD 2019	1 18/04/2019	41	5	4	4
## 189	B256	LD 2019	2 07/05/2019	42	5	3	3
## 190	G847	HD 2019	1 03/04/2019	2	5	5	5
## 191	H540	HD 2019	1 19/04/2019	3	5	5	5
## 192	E666	HD 2019	1 23/04/2019	6	3	3	3
## 193	E614	HD 2019	2 29/05/2019	6	3	1	0

## 194	G681	HD 2019	1	17/04/2019	12	5	5	5
## 195	H813	HD 2019	1	20/04/2019	13	4	4	4
## 196	E301	HD 2019	1	20/04/2019	14	5	4	4
## 197	E534	HD 2019	1	30/04/2019	15	6	5	5
## 198	E313	HD 2019	1	21/04/2019	16	5	3	3
## 199	E313	HD 2019	2	06/06/2019	16	4	4	1
## 200	C533	HD 2019	3	11/05/2019	17	5	5	5
## 201	G166	HD 2019	2	01/05/2019	28	6	6	6
## 202	3424705	HD 2019	1	18/04/2019	31	5	5	3
## 203	3424705	HD 2019	2	05/06/2019	31	4	3	3
## 204	H770	HD 2019	2	15/05/2019	43	4	4	4
## 205	E227	HD 2019	2	04/06/2019	44	4	2	2
## 206	H451	HD 2019	1	18/04/2019	45	5	4	3
## 207	G849	HD 2019	2	31/05/2019	45	4	3	3
## 208	B337	HD 2019	2	01/06/2019	46	3	3	2
## 209	C170	HD 2019	1	19/04/2019	47	5	5	5
## 210	B336	HD 2019	2	02/06/2019	47	4	4	2

##	Males	Females	deaths	H2Fdeaths	E2Hdeaths	hatchsurvivalrate	survivalrate
## 1	1	2	0	0	0	1.0000000	1.0000000
## 2	4	1	0	0	0	1.0000000	1.0000000
## 3	1	2	1	0	1	0.7500000	0.7500000
## 4	2	2	0	0	0	1.0000000	1.0000000
## 5	3	1	1	0	1	0.8000000	0.8000000
## 6	3	2	0	0	0	1.0000000	1.0000000
## 7	3	1	1	0	1	0.8000000	0.8000000
## 8	0	2	3	0	3	0.4000000	0.4000000
## 9	1	3	0	0	0	1.0000000	1.0000000
## 10	2	0	1	0	1	0.6666667	0.6666667
## 11	2	1	0	0	0	1.0000000	1.0000000
## 12	4	0	0	0	0	1.0000000	1.0000000
## 13	1	3	0	0	0	1.0000000	1.0000000
## 14	0	4	0	0	0	1.0000000	1.0000000
## 15	2	3	0	0	0	1.0000000	1.0000000
## 16	3	1	0	0	0	1.0000000	1.0000000
## 17	3	0	2	1	1	0.7500000	0.5000000
## 18	4	1	0	0	0	1.0000000	1.0000000
## 19	2	1	1	0	1	0.7500000	0.7500000
## 20	1	3	2	1	1	0.8000000	0.6000000
## 21	1	3	0	0	0	1.0000000	1.0000000
## 22	2	1	1	0	1	0.7500000	0.7500000
## 23	2	3	2	2	0	1.0000000	0.6000000
## 24	1	3	0	0	0	1.0000000	1.0000000
## 25	3	3	1	1	0	1.0000000	0.8333333
## 26	2	3	0	0	0	1.0000000	1.0000000
## 27	0	3	1	0	1	0.7500000	0.7500000
## 28	2	1	0	0	0	1.0000000	1.0000000
## 29	1	4	0	0	0	1.0000000	1.0000000
## 30	3	2	1	1	0	1.0000000	0.8000000
## 31	3	3	0	0	0	1.0000000	1.0000000
## 32	3	1	0	0	0	1.0000000	1.0000000
## 33	1	4	1	1	0	1.0000000	0.8000000
## 34	2	2	0	0	0	1.0000000	1.0000000
## 35	1	3	0	0	0	1.0000000	1.0000000
## 36	2	3	1	1	0	1.0000000	0.8000000

## 37	1	4	1	1	0	1.0000000	0.8000000
## 38	1	4	0	0	0	1.0000000	1.0000000
## 39	3	1	1	0	1	0.8000000	0.8000000
## 40	2	3	0	0	0	1.0000000	1.0000000
## 41	1	3	1	0	1	0.8000000	0.8000000
## 42	2	2	2	1	1	0.8000000	0.6000000
## 43	1	2	1	0	1	0.7500000	0.7500000
## 44	1	3	1	0	1	0.8000000	0.8000000
## 45	3	1	0	0	0	1.0000000	1.0000000
## 46	2	1	2	0	2	0.6000000	0.6000000
## 47	2	2	0	0	0	1.0000000	1.0000000
## 48	4	1	1	1	0	1.0000000	0.8000000
## 49	1	4	0	0	0	1.0000000	1.0000000
## 50	4	1	0	0	0	1.0000000	1.0000000
## 51	3	2	0	0	0	1.0000000	1.0000000
## 52	3	2	0	0	0	1.0000000	1.0000000
## 53	1	4	0	0	0	1.0000000	1.0000000
## 54	1	3	0	0	0	1.0000000	1.0000000
## 55	2	3	0	0	0	1.0000000	1.0000000
## 56	4	0	1	0	1	0.8000000	0.8000000
## 57	2	1	1	1	0	1.0000000	0.6666667
## 58	1	4	0	0	0	1.0000000	1.0000000
## 59	2	2	0	0	0	1.0000000	1.0000000
## 60	3	1	3	1	2	0.6666667	0.5000000
## 61	2	2	1	1	0	1.0000000	0.8000000
## 62	1	3	1	0	1	0.8000000	0.8000000
## 63	2	1	2	0	2	0.6000000	0.6000000
## 64	4	1	0	0	0	1.0000000	1.0000000
## 65	4	1	0	0	0	1.0000000	1.0000000
## 66	1	3	0	0	0	1.0000000	1.0000000
## 67	2	2	0	0	0	1.0000000	1.0000000
## 68	2	2	0	0	0	1.0000000	1.0000000
## 69	1	2	1	0	1	0.7500000	0.7500000
## 70	1	2	2	2	0	1.0000000	0.3333333
## 71	1	3	0	0	0	1.0000000	1.0000000
## 72	1	4	0	0	0	1.0000000	1.0000000
## 73	2	3	0	0	0	1.0000000	1.0000000
## 74	3	1	2	1	1	0.8000000	0.6000000
## 75	3	2	1	1	0	1.0000000	0.8000000
## 76	0	1	3	0	3	0.2500000	0.2500000
## 77	1	3	0	0	0	1.0000000	1.0000000
## 78	1	1	0	0	0	1.0000000	1.0000000
## 79	0	4	2	0	2	0.6666667	0.6666667
## 80	0	2	1	0	1	0.6666667	0.6666667
## 81	1	3	0	0	0	1.0000000	1.0000000
## 82	2	2	4	4	0	1.0000000	0.0000000
## 83	1	2	1	0	1	0.7500000	0.7500000
## 84	1	3	1	0	1	0.8000000	0.8000000
## 85	2	1	5	3	2	0.6000000	0.0000000
## 86	3	1	1	0	1	0.8000000	0.8000000
## 87	3	2	0	0	0	1.0000000	1.0000000
## 88	3	2	0	0	0	1.0000000	1.0000000
## 89	0	4	1	0	1	0.8000000	0.8000000
## 90	3	2	0	0	0	1.0000000	1.0000000

## 91	3	2	0	0	0	1.0000000	1.0000000
## 92	2	1	2	0	2	0.6000000	0.6000000
## 93	3	3	1	1	0	1.0000000	0.8333333
## 94	4	0	0	0	0	1.0000000	1.0000000
## 95	1	2	3	1	2	0.6000000	0.4000000
## 96	3	2	0	0	0	1.0000000	1.0000000
## 97	3	2	1	0	1	0.8333333	0.8333333
## 98	2	1	2	0	2	0.6000000	0.6000000
## 99	3	3	0	0	0	1.0000000	1.0000000
## 100	3	2	0	0	0	1.0000000	1.0000000
## 101	2	3	0	0	0	1.0000000	1.0000000
## 102	2	2	1	0	1	0.8000000	0.8000000
## 103	2	3	4	4	0	1.0000000	0.2000000
## 104	1	5	0	0	0	1.0000000	1.0000000
## 105	1	3	1	0	1	0.8000000	0.8000000
## 106	2	0	4	2	2	0.5000000	0.0000000
## 107	2	2	3	2	1	0.8000000	0.4000000
## 108	1	2	2	1	1	0.7500000	0.5000000
## 109	2	3	0	0	0	1.0000000	1.0000000
## 110	3	2	0	0	0	1.0000000	1.0000000
## 111	2	0	3	1	2	0.5000000	0.2500000
## 112	2	3	0	0	0	1.0000000	1.0000000
## 113	3	1	0	0	0	1.0000000	1.0000000
## 114	4	1	0	0	0	1.0000000	1.0000000
## 115	3	2	0	0	0	1.0000000	1.0000000
## 116	1	2	2	0	2	0.6000000	0.6000000
## 117	2	3	0	0	0	1.0000000	1.0000000
## 118	2	3	0	0	0	1.0000000	1.0000000
## 119	1	2	3	1	2	0.6000000	0.4000000
## 120	2	2	1	0	1	0.8000000	0.8000000
## 121	0	2	1	0	1	0.6666667	0.6666667
## 122	1	3	0	0	0	1.0000000	1.0000000
## 123	3	1	0	0	0	1.0000000	1.0000000
## 124	1	2	2	1	1	0.7500000	0.5000000
## 125	2	2	0	0	0	1.0000000	1.0000000
## 126	3	1	4	3	1	0.8000000	0.2000000
## 127	3	0	0	0	0	1.0000000	1.0000000
## 128	4	0	3	2	1	0.8000000	0.4000000
## 129	3	0	2	0	2	0.6000000	0.6000000
## 130	2	2	0	0	0	1.0000000	1.0000000
## 131	1	3	1	0	1	0.8000000	0.8000000
## 132	2	3	0	0	0	1.0000000	1.0000000
## 133	3	1	2	0	2	0.6666667	0.6666667
## 134	2	3	0	0	0	1.0000000	1.0000000
## 135	3	2	1	1	0	1.0000000	0.8000000
## 136	3	2	0	0	0	1.0000000	1.0000000
## 137	2	2	2	1	1	0.8000000	0.6000000
## 138	1	4	2	2	0	1.0000000	0.6000000
## 139	2	1	3	1	2	0.6000000	0.4000000
## 140	1	2	1	0	1	0.7500000	0.7500000
## 141	3	2	0	0	0	1.0000000	1.0000000
## 142	1	1	4	2	2	0.5000000	0.0000000
## 143	2	3	0	0	0	1.0000000	1.0000000
## 144	1	4	0	0	0	1.0000000	1.0000000



## 145	2	1	1	0	1	0.7500000	0.7500000
## 146	2	2	1	0	1	0.8000000	0.8000000
## 147	2	0	5	2	3	0.4000000	0.0000000
## 148	1	1	3	0	3	0.4000000	0.4000000
## 149	2	2	1	0	1	0.8000000	0.8000000
## 150	4	1	0	0	0	1.0000000	1.0000000
## 151	1	3	1	0	1	0.8000000	0.8000000
## 152	1	3	0	0	0	1.0000000	1.0000000
## 153	1	2	1	0	1	0.7500000	0.7500000
## 154	3	1	0	0	0	1.0000000	1.0000000
## 155	3	2	0	0	0	1.0000000	1.0000000
## 156	2	3	0	0	0	1.0000000	1.0000000
## 157	2	1	0	0	0	1.0000000	1.0000000
## 158	2	2	0	0	0	1.0000000	1.0000000
## 159	1	2	1	0	1	0.7500000	0.7500000
## 160	3	2	0	0	0	1.0000000	1.0000000
## 161	0	3	1	0	1	0.7500000	0.7500000
## 162	1	3	1	0	1	0.8000000	0.8000000
## 163	0	4	1	0	1	0.8000000	0.8000000
## 164	3	2	5	5	0	1.0000000	0.0000000
## 165	1	1	1	0	1	0.6666667	0.6666667
## 166	3	1	1	0	1	0.8000000	0.8000000
## 167	0	4	2	1	1	0.8000000	0.6000000
## 168	0	3	5	3	2	0.6000000	0.0000000
## 169	2	1	1	0	1	0.7500000	0.7500000
## 170	4	0	0	0	0	1.0000000	1.0000000
## 171	3	1	2	0	2	0.6666667	0.6666667
## 172	3	1	0	0	0	1.0000000	1.0000000
## 173	3	2	0	0	0	1.0000000	1.0000000
## 174	2	1	1	0	1	0.7500000	0.7500000
## 175	4	0	4	3	1	0.8000000	0.2000000
## 176	2	3	0	0	0	1.0000000	1.0000000
## 177	1	2	1	1	0	1.0000000	0.6666667
## 178	3	1	0	0	0	1.0000000	1.0000000
## 179	3	3	0	0	0	1.0000000	1.0000000
## 180	2	3	0	0	0	1.0000000	1.0000000
## 181	3	2	0	0	0	1.0000000	1.0000000
## 182	1	2	0	0	0	1.0000000	1.0000000
## 183	3	0	1	0	1	0.7500000	0.7500000
## 184	0	5	0	0	0	1.0000000	1.0000000
## 185	2	1	2	0	2	0.6000000	0.6000000
## 186	3	0	2	1	1	0.7500000	0.5000000
## 187	1	2	2	0	2	0.6000000	0.6000000
## 188	1	3	1	0	1	0.8000000	0.8000000
## 189	3	1	2	0	2	0.6000000	0.6000000
## 190	4	1	0	0	0	1.0000000	1.0000000
## 191	3	2	0	0	0	1.0000000	1.0000000
## 192	1	2	0	0	0	1.0000000	1.0000000
## 193	0	1	3	1	2	0.3333333	0.0000000
## 194	1	4	0	0	0	1.0000000	1.0000000
## 195	1	3	0	0	0	1.0000000	1.0000000
## 196	0	4	1	0	1	0.8000000	0.8000000
## 197	1	4	1	0	1	0.8333333	0.8333333
## 198	2	1	2	0	2	0.6000000	0.6000000

## 199	1	3	3	3	0	1.0000000	0.2500000
## 200	3	2	0	0	0	1.0000000	1.0000000
## 201	1	5	0	0	0	1.0000000	1.0000000
## 202	3	3	2	2	0	1.0000000	0.6000000
## 203	2	1	1	0	1	0.7500000	0.7500000
## 204	1	3	0	0	0	1.0000000	1.0000000
## 205	2	0	2	0	2	0.5000000	0.5000000
## 206	2	2	2	1	1	0.8000000	0.6000000
## 207	2	1	1	0	1	0.7500000	0.7500000
## 208	1	2	1	1	0	1.0000000	0.6666667
## 209	1	4	0	0	0	1.0000000	1.0000000
## 210	3	1	2	2	0	1.0000000	0.5000000
##	femaleratio	femaledgeaths					
## 1	2.0000000	0.0000000					
## 2	0.2500000	0.0000000					
## 3	2.0000000	2.0000000					
## 4	1.0000000	0.0000000					
## 5	0.3333333	0.3333333					
## 6	0.6666667	0.0000000					
## 7	0.3333333	0.3333333					
## 8	Inf	Inf					
## 9	3.0000000	0.0000000					
## 10	0.0000000	0.0000000					
## 11	0.5000000	0.0000000					
## 12	0.0000000	0.0000000					
## 13	3.0000000	0.0000000					
## 14	Inf	NaN					
## 15	1.5000000	0.0000000					
## 16	0.3333333	0.0000000					
## 17	0.0000000	0.0000000					
## 18	0.2500000	0.0000000					
## 19	0.5000000	0.5000000					
## 20	3.0000000	6.0000000					
## 21	3.0000000	0.0000000					
## 22	0.5000000	0.5000000					
## 23	1.5000000	3.0000000					
## 24	3.0000000	0.0000000					
## 25	1.0000000	1.0000000					
## 26	1.5000000	0.0000000					
## 27	Inf	Inf					
## 28	0.5000000	0.0000000					
## 29	4.0000000	0.0000000					
## 30	0.6666667	0.6666667					
## 31	1.0000000	0.0000000					
## 32	0.3333333	0.0000000					
## 33	4.0000000	4.0000000					
## 34	1.0000000	0.0000000					
## 35	3.0000000	0.0000000					
## 36	1.5000000	1.5000000					
## 37	4.0000000	4.0000000					
## 38	4.0000000	0.0000000					
## 39	0.3333333	0.3333333					
## 40	1.5000000	0.0000000					
## 41	3.0000000	3.0000000					

## 42	1.0000000	2.0000000
## 43	2.0000000	2.0000000
## 44	3.0000000	3.0000000
## 45	0.3333333	0.0000000
## 46	0.5000000	1.0000000
## 47	1.0000000	0.0000000
## 48	0.2500000	0.2500000
## 49	4.0000000	0.0000000
## 50	0.2500000	0.0000000
## 51	0.6666667	0.0000000
## 52	0.6666667	0.0000000
## 53	4.0000000	0.0000000
## 54	3.0000000	0.0000000
## 55	1.5000000	0.0000000
## 56	0.0000000	0.0000000
## 57	0.5000000	0.5000000
## 58	4.0000000	0.0000000
## 59	1.0000000	0.0000000
## 60	0.3333333	1.0000000
## 61	1.0000000	1.0000000
## 62	3.0000000	3.0000000
## 63	0.5000000	1.0000000
## 64	0.2500000	0.0000000
## 65	0.2500000	0.0000000
## 66	3.0000000	0.0000000
## 67	1.0000000	0.0000000
## 68	1.0000000	0.0000000
## 69	2.0000000	2.0000000
## 70	2.0000000	4.0000000
## 71	3.0000000	0.0000000
## 72	4.0000000	0.0000000
## 73	1.5000000	0.0000000
## 74	0.3333333	0.6666667
## 75	0.6666667	0.6666667
## 76	Inf	Inf
## 77	3.0000000	0.0000000
## 78	1.0000000	0.0000000
## 79	Inf	Inf
## 80	Inf	Inf
## 81	3.0000000	0.0000000
## 82	1.0000000	4.0000000
## 83	2.0000000	2.0000000
## 84	3.0000000	3.0000000
## 85	0.5000000	2.5000000
## 86	0.3333333	0.3333333
## 87	0.6666667	0.0000000
## 88	0.6666667	0.0000000
## 89	Inf	Inf
## 90	0.6666667	0.0000000
## 91	0.6666667	0.0000000
## 92	0.5000000	1.0000000
## 93	1.0000000	1.0000000
## 94	0.0000000	0.0000000
## 95	2.0000000	6.0000000

## 96	0.6666667	0.0000000
## 97	0.6666667	0.6666667
## 98	0.5000000	1.0000000
## 99	1.0000000	0.0000000
## 100	0.6666667	0.0000000
## 101	1.5000000	0.0000000
## 102	1.0000000	1.0000000
## 103	1.5000000	6.0000000
## 104	5.0000000	0.0000000
## 105	3.0000000	3.0000000
## 106	0.0000000	0.0000000
## 107	1.0000000	3.0000000
## 108	2.0000000	4.0000000
## 109	1.5000000	0.0000000
## 110	0.6666667	0.0000000
## 111	0.0000000	0.0000000
## 112	1.5000000	0.0000000
## 113	0.3333333	0.0000000
## 114	0.2500000	0.0000000
## 115	0.6666667	0.0000000
## 116	2.0000000	4.0000000
## 117	1.5000000	0.0000000
## 118	1.5000000	0.0000000
## 119	2.0000000	6.0000000
## 120	1.0000000	1.0000000
## 121	Inf	Inf
## 122	3.0000000	0.0000000
## 123	0.3333333	0.0000000
## 124	2.0000000	4.0000000
## 125	1.0000000	0.0000000
## 126	0.3333333	1.3333333
## 127	0.0000000	0.0000000
## 128	0.0000000	0.0000000
## 129	0.0000000	0.0000000
## 130	1.0000000	0.0000000
## 131	3.0000000	3.0000000
## 132	1.5000000	0.0000000
## 133	0.3333333	0.6666667
## 134	1.5000000	0.0000000
## 135	0.6666667	0.6666667
## 136	0.6666667	0.0000000
## 137	1.0000000	2.0000000
## 138	4.0000000	8.0000000
## 139	0.5000000	1.5000000
## 140	2.0000000	2.0000000
## 141	0.6666667	0.0000000
## 142	1.0000000	4.0000000
## 143	1.5000000	0.0000000
## 144	4.0000000	0.0000000
## 145	0.5000000	0.5000000
## 146	1.0000000	1.0000000
## 147	0.0000000	0.0000000
## 148	1.0000000	3.0000000
## 149	1.0000000	1.0000000

## 150	0.2500000	0.0000000
## 151	3.0000000	3.0000000
## 152	3.0000000	0.0000000
## 153	2.0000000	2.0000000
## 154	0.3333333	0.0000000
## 155	0.6666667	0.0000000
## 156	1.5000000	0.0000000
## 157	0.5000000	0.0000000
## 158	1.0000000	0.0000000
## 159	2.0000000	2.0000000
## 160	0.6666667	0.0000000
## 161	Inf	Inf
## 162	3.0000000	3.0000000
## 163	Inf	Inf
## 164	0.6666667	3.3333333
## 165	1.0000000	1.0000000
## 166	0.3333333	0.3333333
## 167	Inf	Inf
## 168	Inf	Inf
## 169	0.5000000	0.5000000
## 170	0.0000000	0.0000000
## 171	0.3333333	0.6666667
## 172	0.3333333	0.0000000
## 173	0.6666667	0.0000000
## 174	0.5000000	0.5000000
## 175	0.0000000	0.0000000
## 176	1.5000000	0.0000000
## 177	2.0000000	2.0000000
## 178	0.3333333	0.0000000
## 179	1.0000000	0.0000000
## 180	1.5000000	0.0000000
## 181	0.6666667	0.0000000
## 182	2.0000000	0.0000000
## 183	0.0000000	0.0000000
## 184	Inf	NaN
## 185	0.5000000	1.0000000
## 186	0.0000000	0.0000000
## 187	2.0000000	4.0000000
## 188	3.0000000	3.0000000
## 189	0.3333333	0.6666667
## 190	0.2500000	0.0000000
## 191	0.6666667	0.0000000
## 192	2.0000000	0.0000000
## 193	Inf	Inf
## 194	4.0000000	0.0000000
## 195	3.0000000	0.0000000
## 196	Inf	Inf
## 197	4.0000000	4.0000000
## 198	0.5000000	1.0000000
## 199	3.0000000	9.0000000
## 200	0.6666667	0.0000000
## 201	5.0000000	0.0000000
## 202	1.0000000	2.0000000
## 203	0.5000000	0.5000000

```
## 204 3.0000000 0.0000000
## 205 0.0000000 0.0000000
## 206 1.0000000 2.0000000
## 207 0.5000000 0.5000000
## 208 2.0000000 2.0000000
## 209 4.0000000 0.0000000
## 210 0.3333333 0.6666667
```

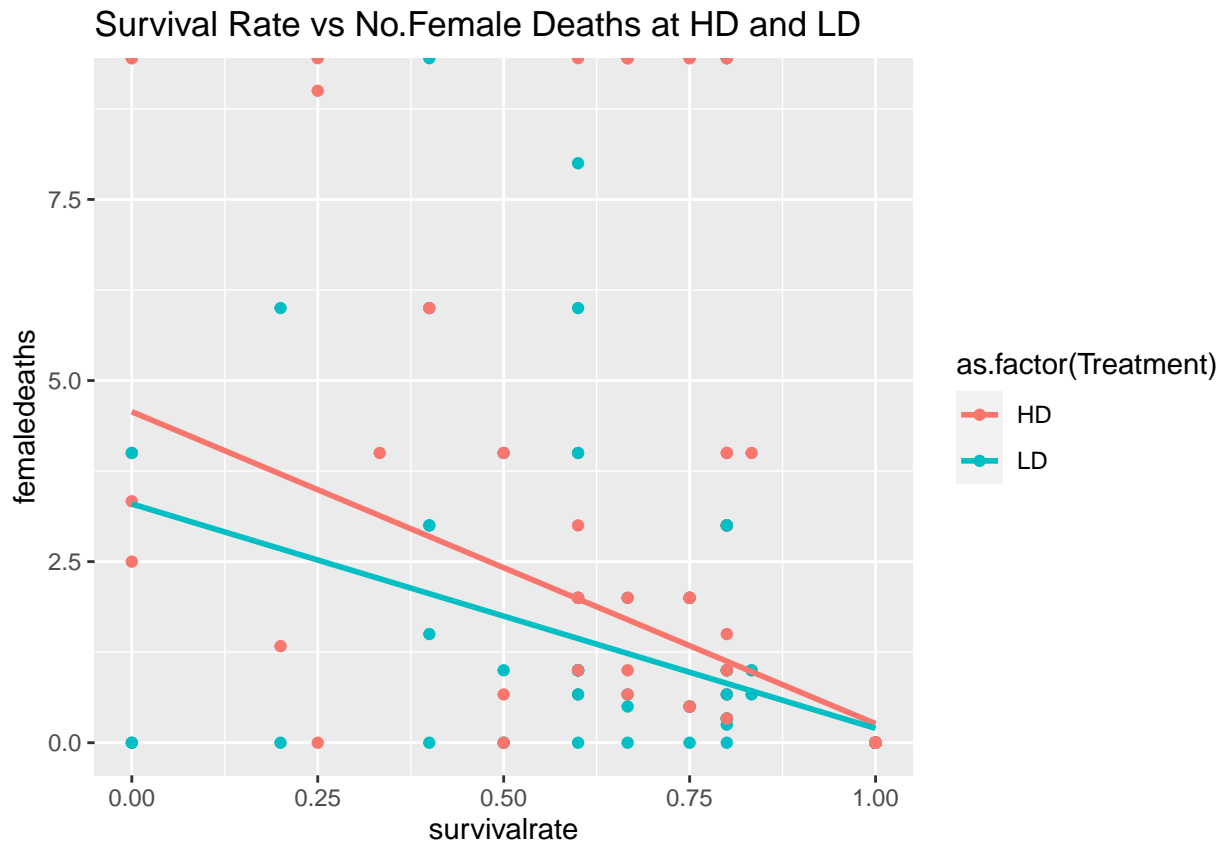
*#Plot Survival Rates In HD vs LD*

```
rubalcaba %>% subset(! is.na(Treatment)) %>%
  ggplot(aes(x=survivalrate, y= femaledeaths, color= as.factor(Treatment))) +geom_point()+
  labs(title = "Survival Rate vs No.Female Deaths at HD and LD" ) +
  geom_smooth(method="lm", se=F)
```

```
## `geom_smooth()` using formula = 'y ~ x'
```

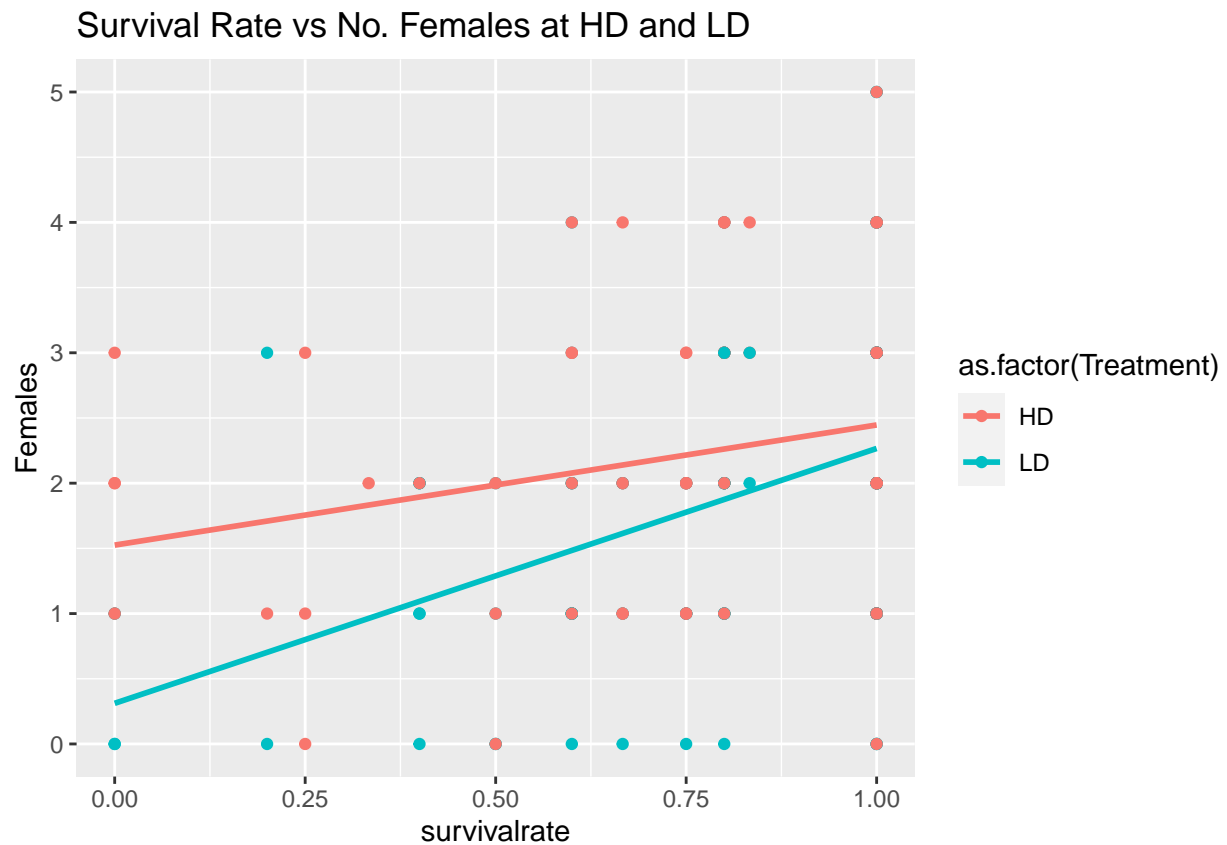
```
## Warning: Removed 15 rows containing non-finite values (`stat_smooth()`).
```

```
## Warning: Removed 2 rows containing missing values (`geom_point()`).
```



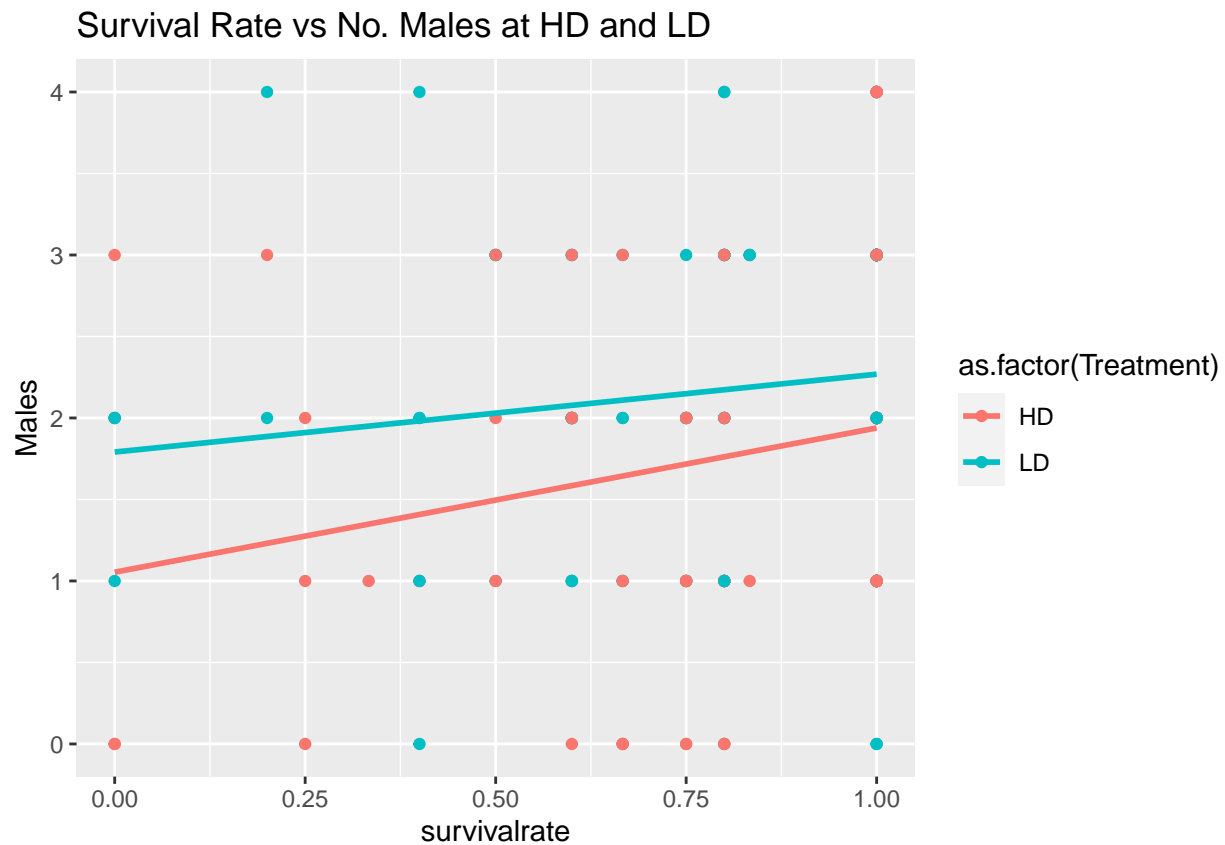
```
rubalcaba %>% subset (! is.na(Treatment)) %>%
  ggplot(aes(x = survivalrate, y= Females, color = as.factor(Treatment))) + geom_point() +
  labs(title = "Survival Rate vs No. Females at HD and LD" )+
  geom_smooth(method = "lm", se =F )
```

```
## `geom_smooth()` using formula = 'y ~ x'
```



```
rubalcaba %>% subset (! is.na(Treatment)) %>%
  ggplot(aes(x = survivalrate, y= Males, color = as.factor(Treatment))) + geom_point() +
  labs(title = "Survival Rate vs No. Males at HD and LD" )+
  geom_smooth(method = "lm", se =F )
```

```
## `geom_smooth()` using formula = 'y ~ x'
```

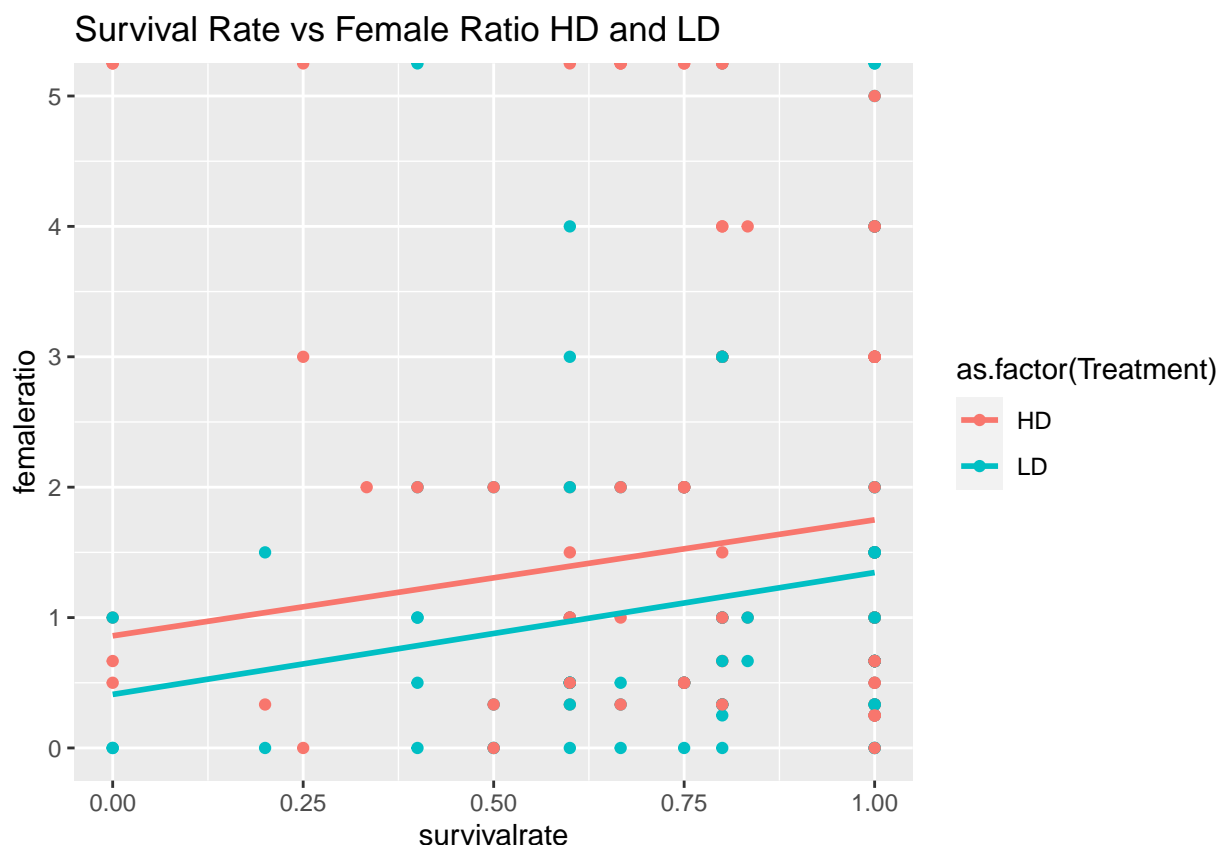


```
rubalcaba %>% subset (! is.na(Treatment)) %>%
  ggplot(aes(x = survivalrate , y= femaleratio, color = as.factor(Treatment))) + geom_point() +
  labs(title = "Survival Rate vs Female Ratio HD and LD" )+
  geom_smooth(method = "lm", se =F )
```

```
## `geom_smooth()` using formula = 'y ~ x'
```

```
## Warning: Removed 15 rows containing non-finite values (`stat_smooth()`).
```





```
#Plot Survival Rates vs Female Ratio

#Analyze relationship between female sex ratio and survival rates
```

```
rubalcaba_df <- as_tibble(as.matrix(rubalcaba)) %>%
  mutate(femaleratio = as.integer(femaleratio),
         survivalrate = as.numeric(survivalrate))

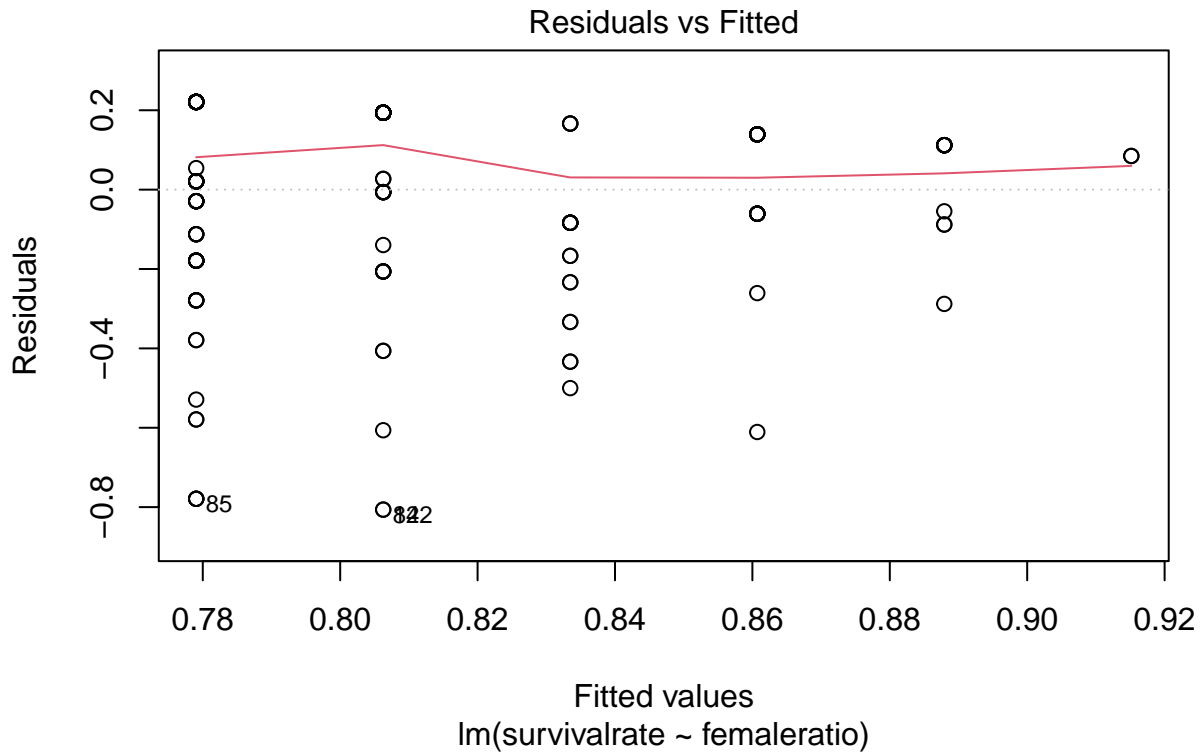
## Warning: There was 1 warning in `mutate()`.
## i In argument: `femaleratio = as.integer(femaleratio)`.
## Caused by warning:
## ! NAs introduced by coercion to integer range

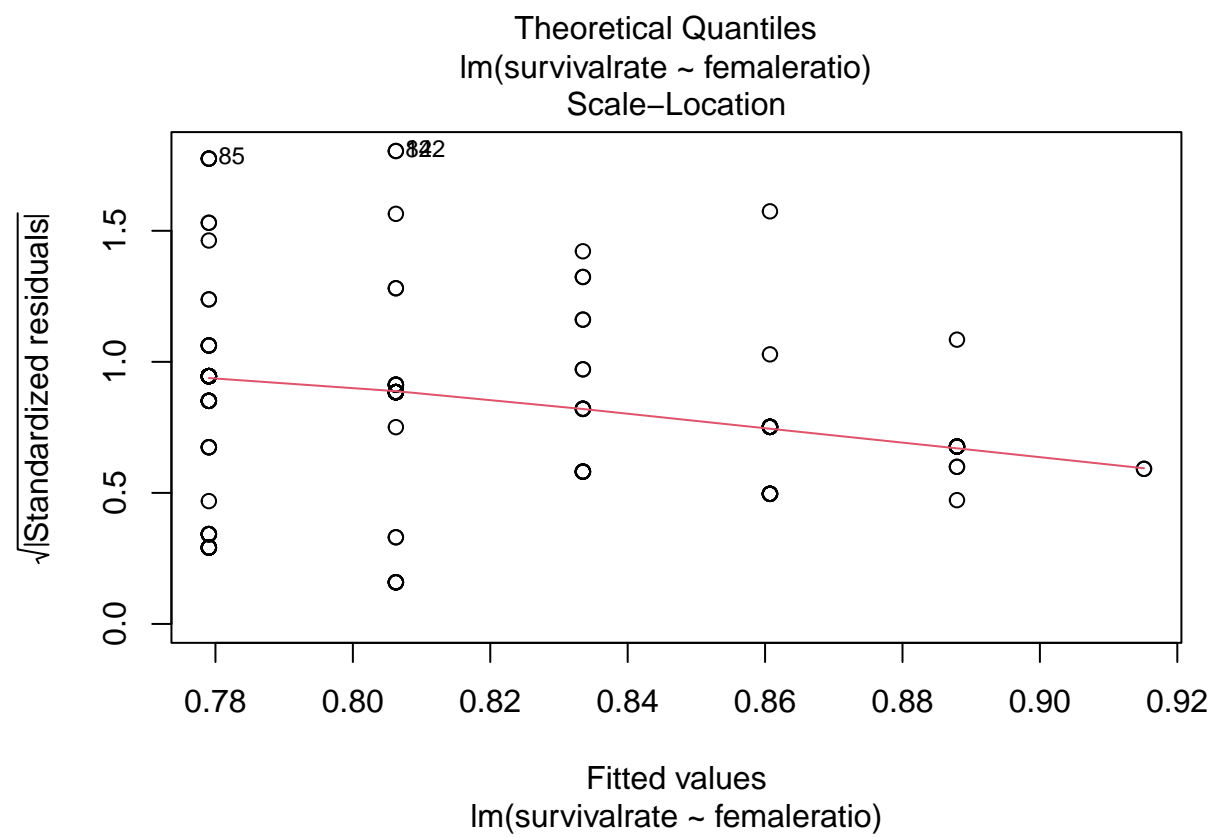
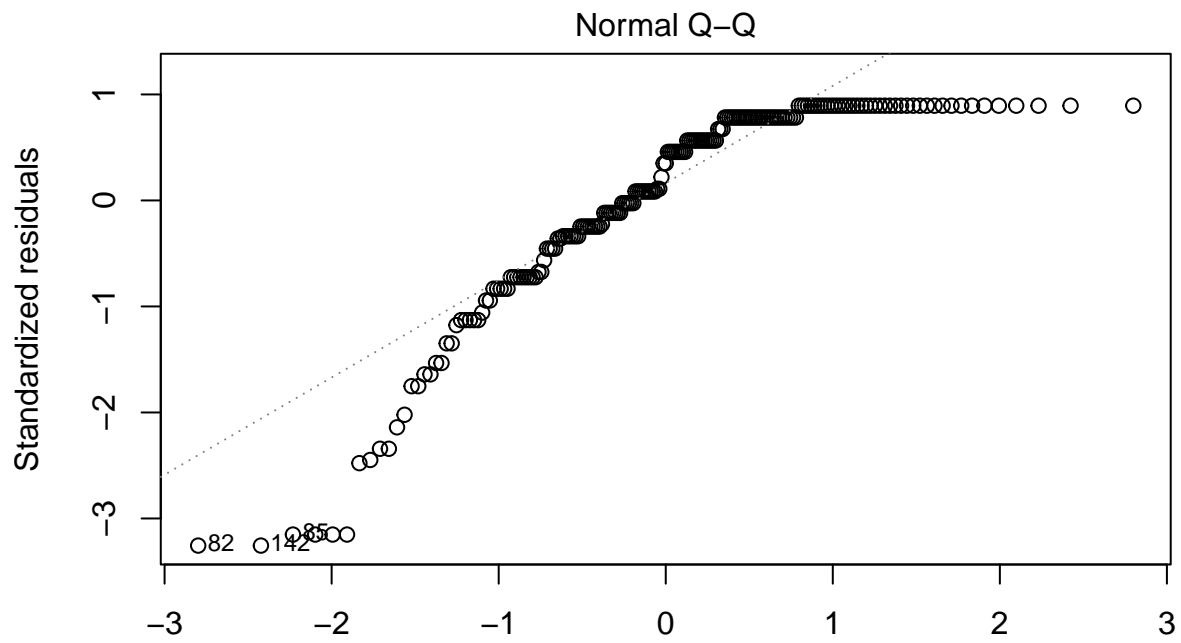
comodel <- lm(survivalrate ~ femaleratio, data = rubalcaba_df)
summary(comodel)
```

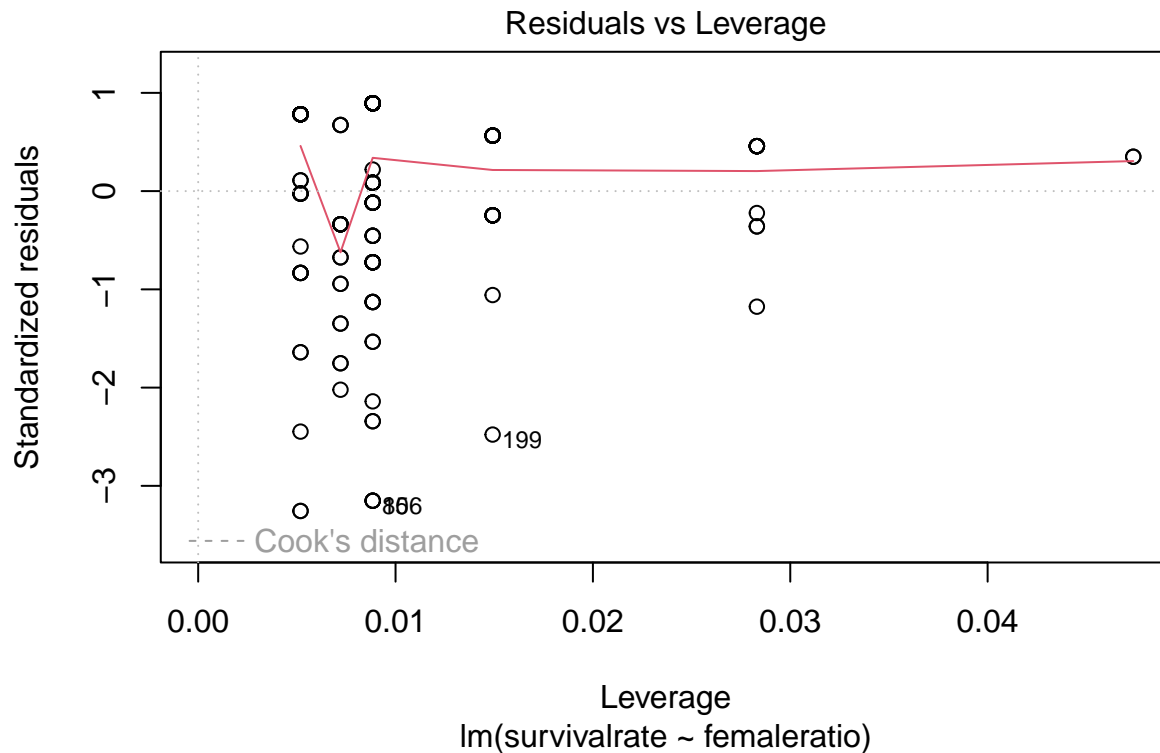
```
##
## Call:
## lm(formula = survivalrate ~ femaleratio, data = rubalcaba_df)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -0.80626 -0.11237  0.08485  0.19374  0.22096
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)  0.77904    0.02335  33.364  <2e-16 ***
## femaleratio  0.02722    0.01323   2.057   0.041 *
## ---
```

```
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.2483 on 193 degrees of freedom
## (15 observations deleted due to missingness)
## Multiple R-squared:  0.02145,    Adjusted R-squared:  0.01638
## F-statistic: 4.231 on 1 and 193 DF,  p-value: 0.04103
```

```
plot(comodel)
```







```
#Normality: Data relatively normal distribution but a slight skewed to the right is visible
#Residuals vs Fitted: shows equal variance, indicating consistency in variance in data.
#Scale-location: Shows there is equal variance in the data set. Variance between values is relatively c

#Analyze impacts of treatment on the relationship between female ratio and survival rate
treatmentmodel <- lm(survivalrate ~ femaleratio *as.factor(Treatment), data =rubalcaba_df)
Anova(treatmentmodel, type =3 )
```

```
## Anova Table (Type III tests)
##
## Response: survivalrate
##
## Sum Sq Df F value Pr(>F)
## (Intercept) 29.1107 1 467.4439 <2e-16 ***
## femaleratio 0.1317 1 2.1153 0.1475
## as.factor(Treatment) 0.0017 1 0.0280 0.8674
## femaleratio:as.factor(Treatment) 0.0000 1 0.0002 0.9875
## Residuals 11.8948 191
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

#sum squared values are low showing low variability/ deviation from the mean. Sum sq is much higher for female ratio than when accounting for treatment, showing female ratio has more impact on the variance seen in the population. Variance decreases when treatment is accounted for. Treatment does not significant effect on variation.

#F Value is significantly higher for female ratio independently, indicating female ratios have a significant impact on survival rates over treatment. The variation between samples is higher than expected to be from on the average variation within groups. This is accounted for by female ratio.

#P Value when treatment is considered p value is >0.05 (0.8674 and 0.9875) and therefore fails to reject the null or provide significance to the F value. However the P value for female ratio is 0.1475 and therefore does not show significance for the F-value.

```

```r
#Fitness Calculations

#Survival Rate is taken as variable "survivalrate" which was previously calculated
#Reproductive Rate is calculated by the average amount of eggs per mother

#Group together the total number of eggs produced by each mother as well as the average survival rate of
mothersort <- rubalcaba

#Divide the survival rate by the number of eggs for an average
mothersort$avgsurvivalrate <- c(survivalrate/(rubalcaba$Eggs))

#Calculate Relative Fitness by multiplying reproduction by survival and dividing it by the max values s
avgE <- mean(mothersort$Eggs)
avgS <- mean(mothersort$survivalrate)
mothersort$fitness <- c((mothersort$survivalrate)*(mothersort$Eggs))
mothersort$relativefitness <- c(((mothersort$survivalrate)*(mothersort$Eggs))/(avgE*avgS))

head(mothersort)

##      Mother Treatment Year Clutch      Date Nest Eggs Hatchlings Fledglings
## 1 3296489          LD 2015      1 14/04/2015  42    3           3           3
## 2   A703          LD 2015      1 08/04/2015   8    5           5           5
## 3   C038          LD 2015      1 08/04/2015  11    4           3           3
## 4   C141          LD 2015      1 28/05/2015  20    4           4           4
## 5   C524          LD 2015      1 05/04/2015  25    5           4           4
## 6   C663          LD 2015      1 07/04/2015  24    5           5           5
##      Males Females deaths H2Fdeaths E2Hdeaths hatchsurvivalrate survivalrate
## 1      1        2      0          0          0             1.00           1.00
## 2      4        1      0          0          0             1.00           1.00
## 3      1        2      1          0          1             0.75           0.75
## 4      2        2      0          0          0             1.00           1.00
## 5      3        1      1          0          1             0.80           0.80
## 6      3        2      0          0          0             1.00           1.00
##      femaleratio femaledeaths avgsurvivalrate fitness relativefitness
## 1      2.0000000  0.0000000  0.3333333  3      0.8211448
## 2      0.2500000  0.0000000  0.2000000  5      1.3685746
## 3      2.0000000  2.0000000  0.1875000  3      0.8211448
## 4      1.0000000  0.0000000  0.2500000  4      1.0948597
## 5      0.3333333  0.3333333  0.1600000  4      1.0948597
## 6      0.6666667  0.0000000  0.2000000  5      1.3685746

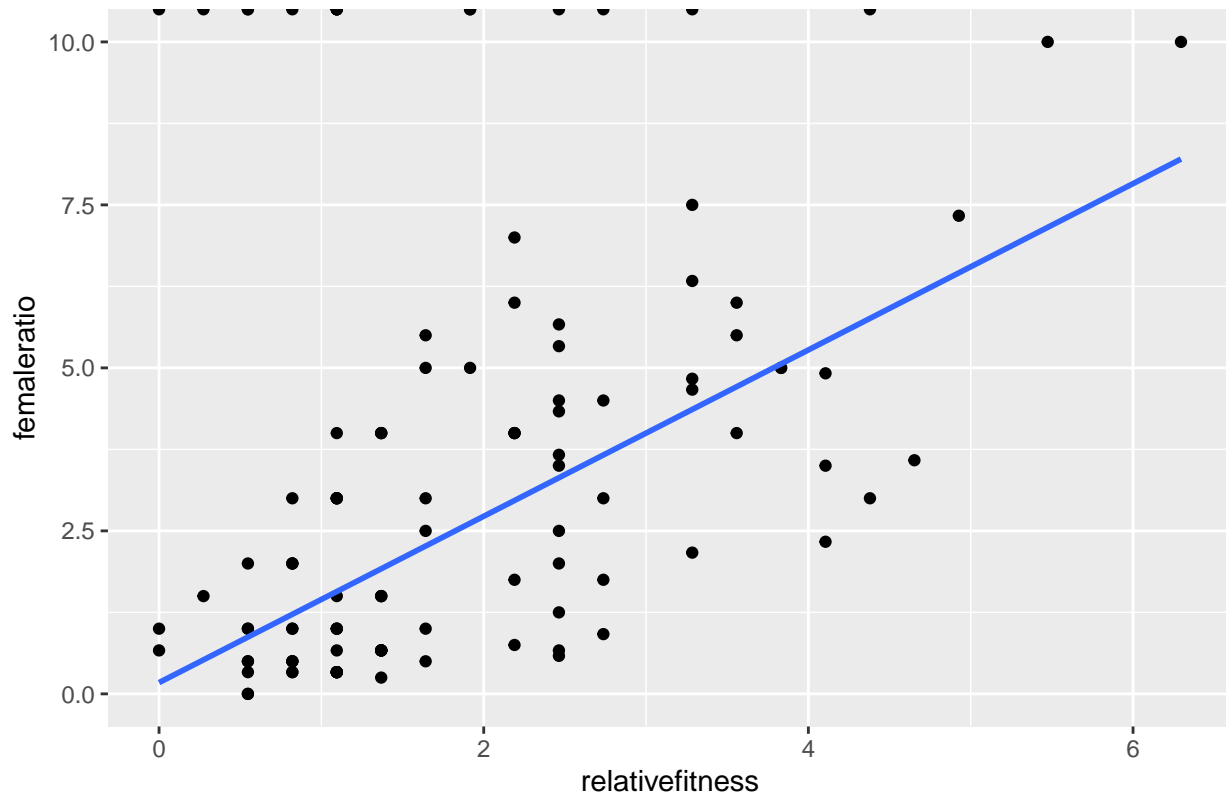
#group by mothers, sum avgsurvival, number of eggs and fitness
mothersort%>%
  group_by(mothersort$Mother)%>%
  summarise(across(c(Eggs, avgsurvivalrate, relativefitness, femaleratio,survivalrate),sum))%>%
  ggplot(aes(x = relativefitness , y= femaleratio)) + geom_point() + labs(title = "Survival Rate Vs Rel.
  geom_smooth(method = "lm", se =F )

```

```
## `geom_smooth()` using formula = 'y ~ x'
```

```
## Warning: Removed 15 rows containing non-finite values (`stat_smooth()`).
```

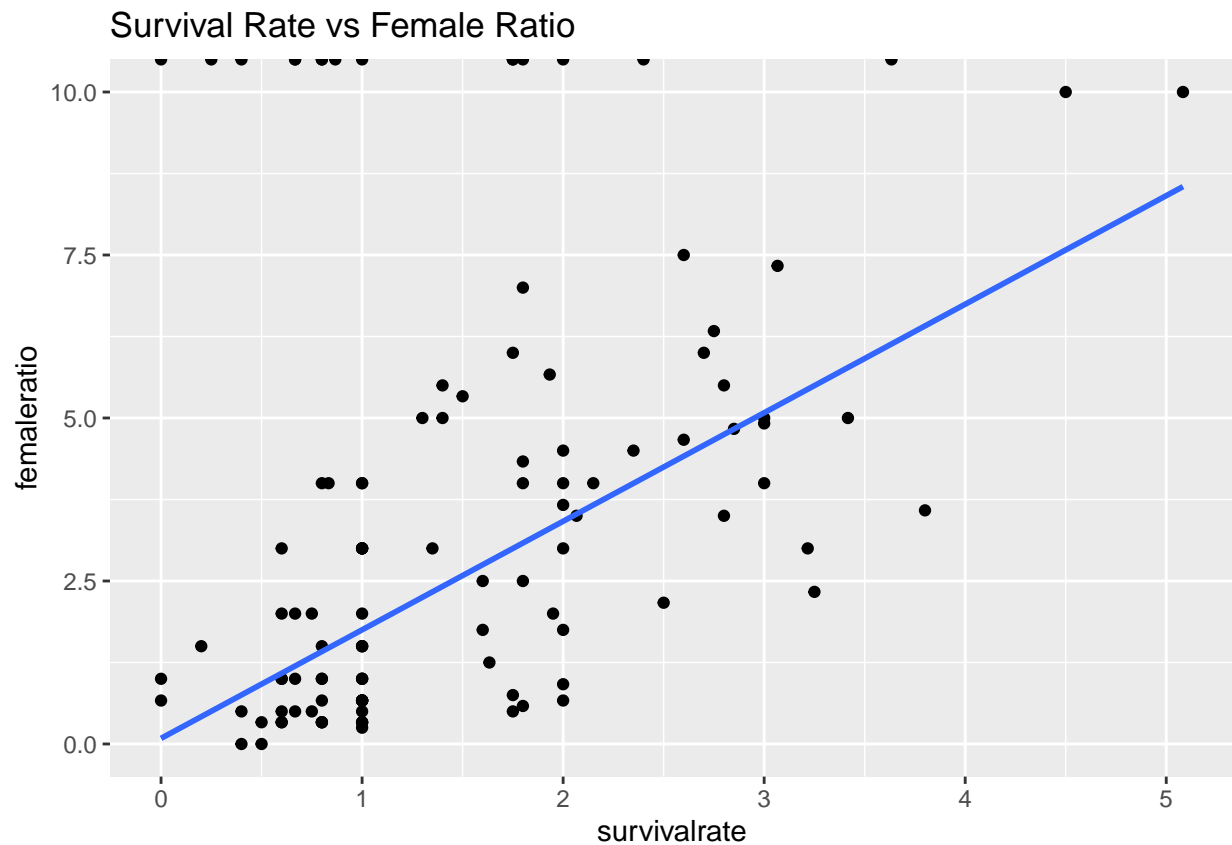
### Survival Rate Vs Relative Fitness



```
mothersort%>%
  group_by(mothersort$Mother)%>%
  summarise(across(c(Eggs, avgsurvivalrate, relativefitness, femaleratio,survivalrate),sum))%>%
  ggplot(aes(x = survivalrate , y= femaleratio)) + geom_point() + labs(title = "Survival Rate vs Female")
  geom_smooth(method = "lm", se =F )
```

```
## `geom_smooth()` using formula = 'y ~ x'
```

```
## Warning: Removed 15 rows containing non-finite values (`stat_smooth()`).
```

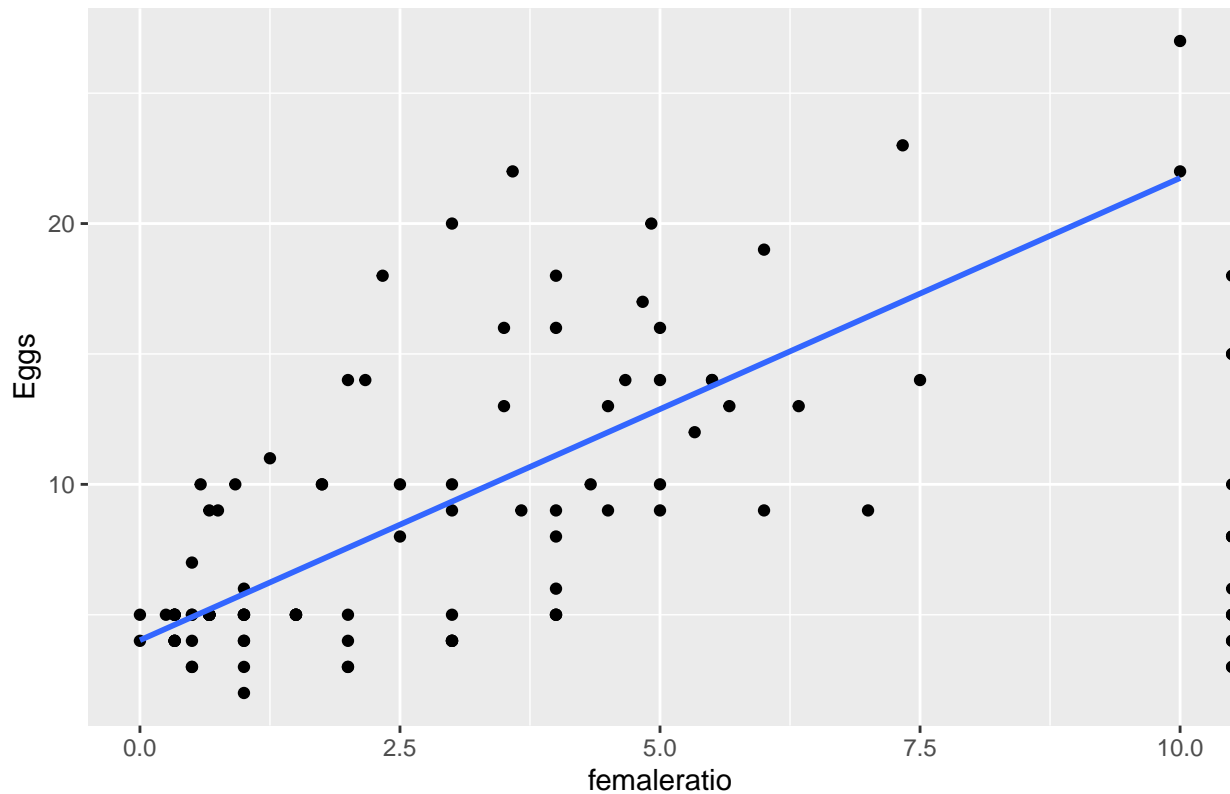


```
mothersort%>%
  group_by(mothersort$Mother)%>%
  summarise(across(c(Eggs, avgsurvivalrate, relativefitness, femaleratio,survivalrate),sum))%>%
  ggplot(aes(x = femaleratio , y= Eggs)) + geom_point() + labs(title = "Reproductive Rate vs Female Rat")
  geom_smooth(method = "lm", se =F )
```

```
## `geom_smooth()` using formula = 'y ~ x'
```

```
## Warning: Removed 15 rows containing non-finite values (`stat_smooth()`).
```

## Reproductive Rate vs Female Ratio



```
head(mothersort)
```

```
##      Mother Treatment Year Clutch      Date Nest Eggs Hatchlings Fledglings
## 1 3296489          LD 2015        1 14/04/2015  42    3           3           3
## 2   A703          LD 2015        1 08/04/2015   8    5           5           5
## 3   C038          LD 2015        1 08/04/2015  11    4           3           3
## 4   C141          LD 2015        1 28/05/2015  20    4           4           4
## 5   C524          LD 2015        1 05/04/2015  25    5           4           4
## 6   C663          LD 2015        1 07/04/2015  24    5           5           5
##      Males Females deaths H2Fdeaths E2Hdeaths hatchsurvivalrate survivalrate
## 1      1      2      0      0      0      1.00      1.00
## 2      4      1      0      0      0      1.00      1.00
## 3      1      2      1      0      1      0.75      0.75
## 4      2      2      0      0      0      1.00      1.00
## 5      3      1      1      0      1      0.80      0.80
## 6      3      2      0      0      0      1.00      1.00
##      femaleratio femaledeaths avgsurvivalrate fitness relativefitness
## 1  2.0000000  0.0000000  0.3333333  3  0.8211448
## 2  0.2500000  0.0000000  0.2000000  5  1.3685746
## 3  2.0000000  2.0000000  0.1875000  3  0.8211448
## 4  1.0000000  0.0000000  0.2500000  4  1.0948597
## 5  0.3333333  0.3333333  0.1600000  4  1.0948597
## 6  0.6666667  0.0000000  0.2000000  5  1.3685746
```

```
mothersort_df <- as_tibble(as.matrix(mothersort)) %>%
  mutate(femaleratio = as.integer(femaleratio),
         relativefitness = as.numeric(relativefitness))
```

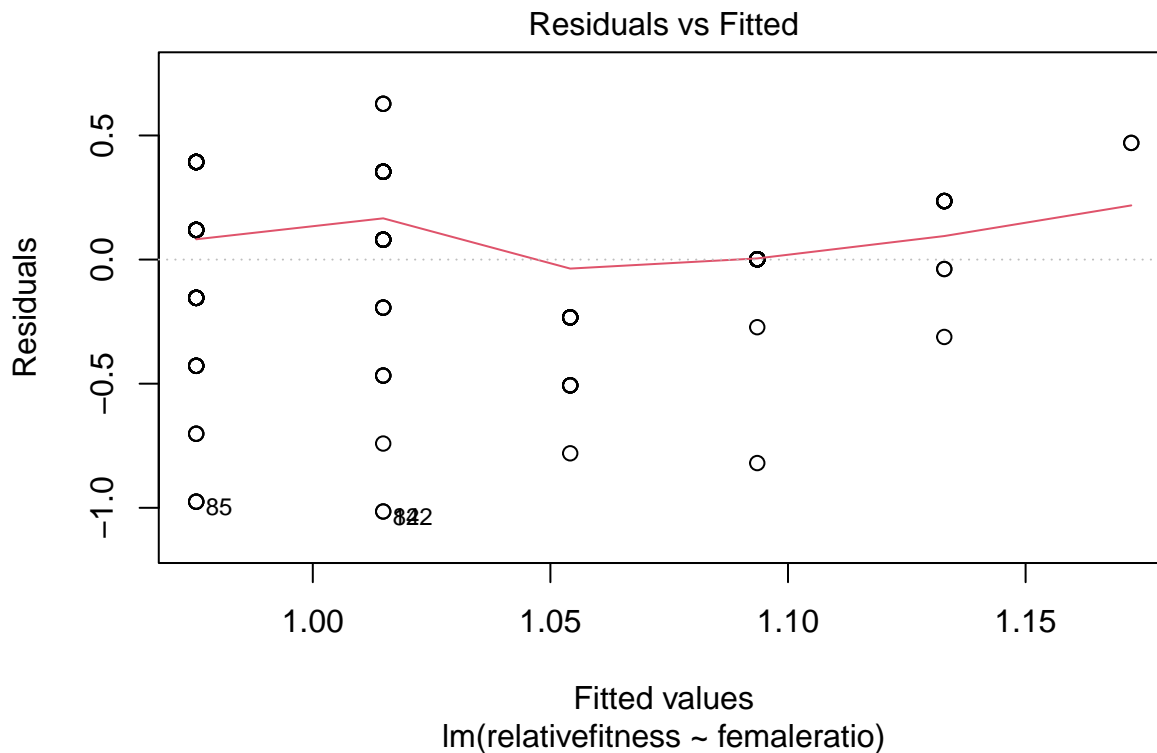


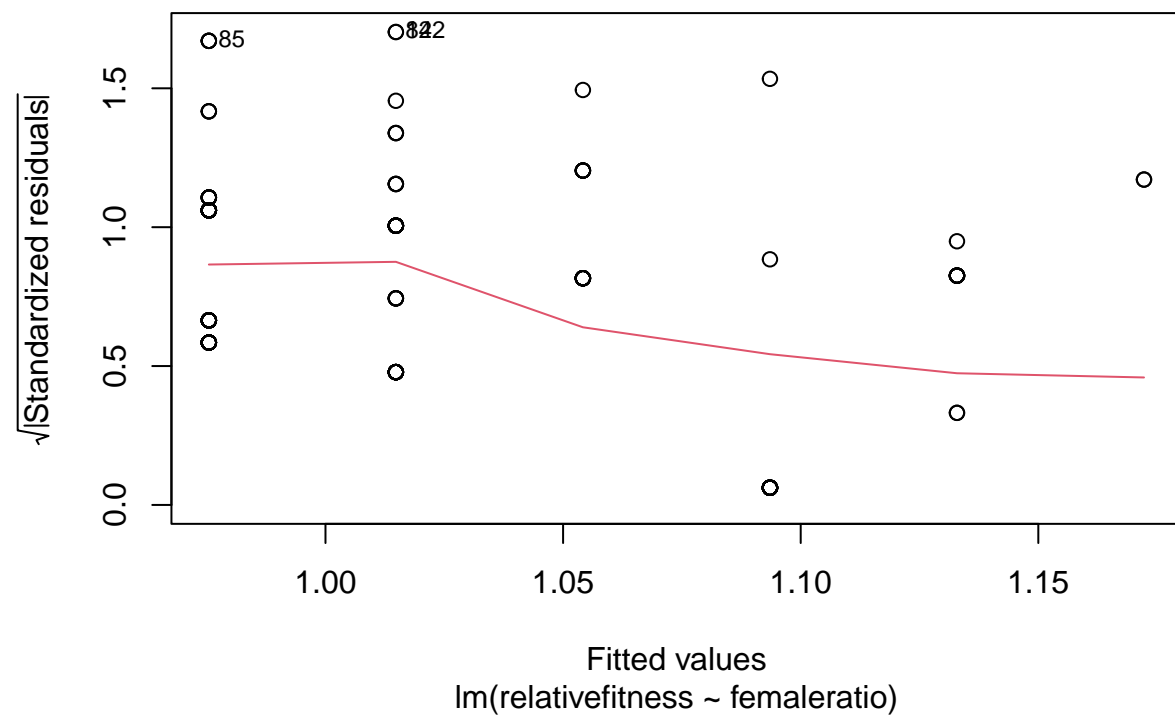
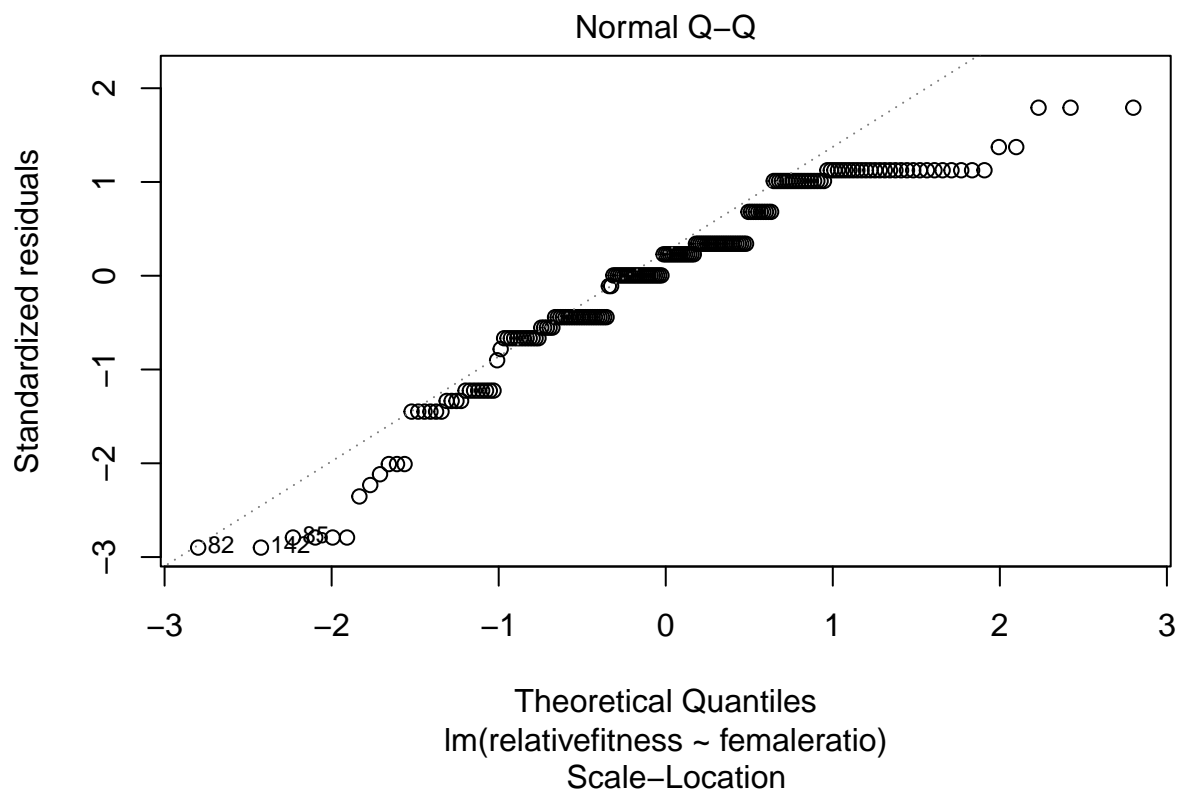
```
## Warning: There was 1 warning in `mutate()`.
## i In argument: `femaleratio = as.integer(femaleratio)`.
## Caused by warning:
## ! NAs introduced by coercion to integer range

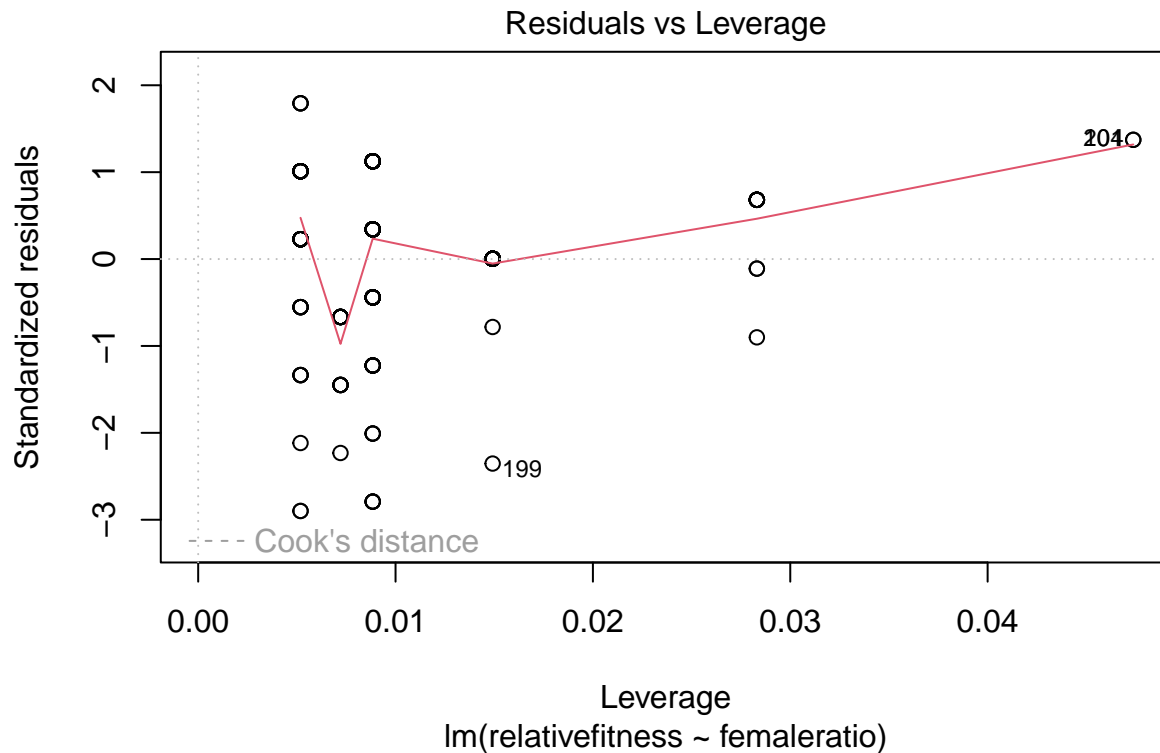
comodel2 <- lm(relativefitness ~ femaleratio, data = mothersort_df)
summary(comodel2)
```

```
##
## Call:
## lm(formula = relativefitness ~ femaleratio, data = mothersort_df)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -1.01481 -0.17399  0.08005  0.35376  0.62748
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)  0.97546    0.03301  29.554  <2e-16 ***
## femaleratio  0.03936    0.01871   2.104   0.0367 *
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.351 on 193 degrees of freedom
## (15 observations deleted due to missingness)
## Multiple R-squared:  0.02242,    Adjusted R-squared:  0.01735
## F-statistic: 4.426 on 1 and 193 DF,  p-value: 0.03669
```

```
plot(comodel2)
```







```
```r
```

```
#model for treatment impact on fitness
```

```
fitnessmodel2 <- lm(mothersort$relativefitness ~ femaleratio *as.factor(Treatment), data =mothersort_df)
```

```
Anova(fitnessmodel2, type =3 )
```

```
## Anova Table (Type III tests)
```

```
##
```

```
## Response: mothersort$relativefitness
```

	Sum Sq	Df	F value	Pr(>F)
(Intercept)	43.802	1	352.2198	<2e-16 ***
femaleratio	0.325	1	2.6102	0.1078
as.factor(Treatment)	0.016	1	0.1281	0.7208
femaleratio:as.factor(Treatment)	0.001	1	0.0066	0.9354
Residuals	23.753	191		

```
## ---
```

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

```
#model for fixed effects
```

```
#replace all infinite values with a value of 0 for female ratio
```

```
#mothersort[sapply(mothersort, is.infinite)] <- 1
```

```
#mixed_model <- lmer(relativefitness ~ femaleratio + Treatment + Females + Eggs + (1/Mother), data = mo
```

```
#summary(mixed_model)
```

```
#For some reason will not let me knit this, so here is results of the model
```

```
#Random effects:
```

#Groups	Name	Variance	Std.Dev.
# Mother	(Intercept)	0.00000	0.0000
# Residual		0.08983	0.2997

```

#Number of obs: 210, groups: Mother, 113

#Fixed effects:
#              Estimate Std. Error      df t value Pr(>|t|)
#(Intercept)   0.02621    0.13370 210.00000   0.196  0.8448
#femaleratio  -0.05226    0.02987 210.00000  -1.749  0.0817 .
#TreatmentLD   0.05353    0.04262 210.00000   1.256  0.2106
#Females       0.15352    0.03251 210.00000   4.723 4.25e-06 ***
#Eggs          0.15274    0.03153 210.00000   4.845 2.46e-06 ***
#Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

#Correlation of Fixed Effects:
#              (Intr) femlrt TrtmLD Femals
#femaleratio -0.225
#TreatmentLD -0.040 -0.003
#Females     0.194 -0.797  0.133
#Eggs        -0.924  0.301 -0.170 -0.442
#optimizer (nloptwrap) convergence code: 0 (OK)
#boundary (singular) fit: see help('isSingular')

```

““