

Supplementary Material 1 – Confusion matrices of identification models

Table S1. Confusion matrix for modelling round 1 of the collar-mounted data using a Random Forest model. Numbers along the diagonal represent the true positive (TP) value. Pred = identified behaviour, Ob = observed behaviour.

[illegible]

Table S2. Confusion matrix for modelling round 1 of the harness-mounted data using a Random Forest model. Numbers along the diagonal represent the true positive (TP) value. Pred = identified behaviour, Ob = observed behaviour.

[illegible]

Table S3. Confusion matrix for modelling round 1 of the collar-mounted data using a Self-Organizing Map model. Numbers along the diagonal represent the true positive (TP) value. Pred = identified behaviour, Ob = observed behaviour.

[illegible]

Table S4. Confusion matrix for modelling round 1 of the harness-mounted data using a Self-Organizing Map model. Numbers along the diagonal represent the true positive (TP) value. Pred = identified behaviour, Ob = observed behaviour.

[illegible]

Table S5. Confusion matrix for modelling round 2 of the collar data using a Random Forest model. Numbers along the diagonal represent the true positive (TP) value. Pred = identified behaviour, Ob = observed behaviour.

Pred \ Ob	Active	Lying	Sitting	Standing	Grooming	Littering	Eating	Scratching
Active	596	2	12	231	45	4	38	20
Lying	13	1861	187	106	41	8	8	3
Sitting	36	125	1554	159	75	19	5	3
Standing	220	85	235	1226	122	18	83	19
Grooming	164	11	84	220	1573	3	140	34
Littering	0	1	3	3	0	36	0	0
Eating	107	15	24	152	272	8	1784	1
Scratching	6	0	1	3	1	0	0	65

Table S6. Confusion matrix for modelling round 2 of the harness data using a Random Forest model. Numbers along the diagonal represent the true positive (TP) value. Pred = identified behaviour, Ob = observed behaviour.

Pred \ Ob	Active	Lying	Sitting	Standing	Grooming	Littering	Eating	Scratching
Active	730	3	21	339	35	9	26	29
Lying	20	2007	25	54	10	7	17	1
Sitting	32	12	1690	112	76	11	0	1
Standing	229	59	241	1228	159	22	76	17
Grooming	99	15	117	265	1784	6	46	38
Littering	0	1	3	6	0	40	0	0
Eating	29	3	3	96	61	1	1893	0
Scratching	3	0	0	0	4	0	0	59

Table S7. Confusion matrix for modelling round 2 of the collar data using a Self-Organizing Map model. Numbers along the diagonal represent the true positive (TP) value. Pred = identified behaviour, Ob = observed behaviour.

Pred \ Ob	Active	Lying	Sitting	Standing	Grooming	Littering	Eating	Scratching
Active	1142	0	3	13	2	1	0	4
Lying	0	2100	0	0	0	0	0	3
Sitting	0	0	2097	0	0	0	0	2
Standing	0	0	0	2087	0	0	0	2
Grooming	0	0	0	0	2127	0	0	3
Littering	0	0	0	0	0	94	0	0
Eating	0	0	0	0	0	1	2058	0
Scratching	0	0	0	0	0	0	0	131

Table S8. Confusion matrix for modelling round 2 of the harness data using a Self-Organizing Map model. Numbers along the diagonal represent the true positive (TP) value. Pred = identified behaviour, Ob = observed behaviour.

Pred \ Ob	Active	Lying	Sitting	Standing	Grooming	Littering	Eating	Scratching
Active	1128	0	0	11	0	0	2	1
Lying	0	2100	0	0	0	0	0	0
Sitting	0	0	2099	0	0	0	0	1
Standing	14	0	1	2089	1	0	0	0
Grooming	0	0	0	0	2128	0	0	7
Littering	0	0	0	0	0	96	0	0
Eating	0	0	0	0	0	0	2056	0
Scratching	0	0	0	0	0	0	0	136

Table S9. Confusion matrix for modelling round 3 of the collar data using a Random Forest model. Numbers along the diagonal represent the true positive (TP) value. Pred = identified behaviour, Ob = observed behaviour.

Pred \ Ob	Active	Lying	Sitting	Standing	Grooming	Eating
Active	615	1	17	240	66	45
Lying	17	1870	223	112	44	10
Sitting	44	110	1543	174	64	9
Standing	205	91	234	1175	151	79
Grooming	191	12	66	241	1709	129
Eating	70	16	17	158	240	1786

Table S10. Confusion matrix for modelling round 3 of the harness data using a Random Forest model. Numbers along the diagonal represent the true positive (TP) value. Pred = identified behaviour, Ob = observed behaviour.

Pred \ Ob	Active	Lying	Sitting	Standing	Grooming	Eating
Active	745	2	21	328	50	26
Lying	9	1997	33	70	14	10
Sitting	32	17	1648	127	75	0
Standing	214	59	274	1209	173	79
Grooming	103	20	120	252	1898	37
Eating	39	5	4	114	64	1906

Table S11. Confusion matrix for modelling round 3 of the collar data using a Self-Organizing Map model. Numbers along the diagonal represent the true positive (TP) value. Pred = identified behaviour, Ob = observed behaviour.

Pred \ Ob	Active	Lying	Sitting	Standing	Grooming	Eating
Active	1006	1	4	15	2	0
Lying	0	1964	0	0	0	0
Sitting	0	0	2093	0	0	0
Standing	0	1	0	2077	0	0
Grooming	0	0	0	0	2118	0
Eating	136	134	3	8	154	2058

Table S12. Confusion matrix for modelling round 3 of the harness data using a Self-Organizing Map model. Numbers along the diagonal represent the true positive (TP) value. Pred = identified behaviour, Ob = observed behaviour.

Pred \ Ob	Active	Lying	Sitting	Standing	Grooming	Eating
Active	1137	0	3	17	1	0
Lying	0	2100	0	0	0	0
Sitting	1	0	2097	0	0	0
Standing	0	0	0	2081	0	0
Grooming	0	0	0	0	2273	0
Eating	4	0	0	2	0	2058

Table S13. Confusion matrix for modelling round 3 of the collar data using a Random Forest model. Numbers along the diagonal represent the true positive (TP) value. Pred = identified behaviour, Ob = observed behaviour.

Pred \ Ob	Active	Inactive	Maintenance
Active	905	147	69
Inactive	125	1211	111
Maintenance	112	142	1320

Table S14. Confusion matrix for modelling round 3 of the harness data using a Random Forest model. Numbers along the diagonal represent the true positive (TP) value. Pred = identified behaviour, Ob = observed behaviour.

Pred \ Ob	Active	Inactive	Maintenance
Active	901	158	85
Inactive	112	1196	86
Maintenance	129	146	1329

Table S15. Confusion matrix for modelling round 3 of the collar data using a Self-Organizing Map model. Numbers along the diagonal represent the true positive (TP) value. Pred = identified behaviour, Ob = observed behaviour.

Pred \ Ob	Active	Inactive	Maintenance
Active	1142	1	2
Inactive	0	1499	0
Maintenance	0	0	1498

Table S16. Confusion matrix for modelling round 3 of the harness data using a Self-Organizing Map model. Numbers along the diagonal represent the true positive (TP) value. Pred = identified behaviour, Ob = observed behaviour.

Pred \ Ob	Active	Inactive	Maintenance
Active	1142	2	1
Inactive	0	1497	0
Maintenance	0	1	1499