

SUPPLEMENTARY MATERIAL TO:

**Behavioural reactions of three-spined sticklebacks to simulated risk of predation
- effects of predator distance and movement**

Joacim Näslund, Leo Pettersson, & Jörgen I. Johnsson

TABLES OF PAIRWISE CONTRASTS

INSTRUCTIONS ON HOW TO READ THE CONTRAST-TABLES

Tables show p-values from pairwise contrast estimates. These contrasts relates to figure 3 in the main article

Pairwise contrasts among time-intervals within treatments
(treatment noted in black box in the upper left corner)

	T1	T2	T3	T4	T5	T6	T7	T8
T1								
T2	Mobile vs. Mobile					Immobile vs. Mobile		
T3								
T4								
T5								
T6						Immobile		
T7						vs.		
T8						Immobile		

Pairwise contrasts among treatments,
within time intervals (time interval noted
in black box in the upper left corner)

	N	D47	D88	D129	D170
N	No predator vs. Predator				
D47	Predators at different distances				
D88					
D129					
D170					

Colour codes:
Pairwise contrast with $p < 0.05$
Pairwise contrast with $0.1 > p > 0.05$
*** = " $p < 0.001$ "

T1-T8: Time intervals (T1 = first minute; T2 = second minute; etc.)

Key to treatments:
N: No predator
D47: Predator model at 47 cm distance during T1-T5; then moved to 6 cm and kept moving* during T6-T8
D88: Predator model at 88 cm distance during T1-T5; then moved to 47 cm and kept moving* during T6-T8
D129: Predator model at 129 cm distance during T1-T5; then moved to 88 cm and kept moving* during T6-T8
D170: Predator model at 170 cm distance during T1-T5; then moved to 129 cm and kept moving* during T6-T8
* Movement = head lifted every 10 seconds

PROPORTION OF TIME FREEZING

Table S1a-m. Showing p-values of pairwise contrasts for the analysis of freezing time (see Fig. 3a)

S1a.									S1f.					
N	T1	T2	T3	T4	T5	T6	T7	T8	T1	N	D47	D88	D129	D170
T1		0.295	0.054	***	***				N		0.528	0.166	0.789	0.475
T2			0.391	0.015	0.004				D47			0.465	0.367	0.178
T3				0.130	0.054				D88				0.094	0.032
T4					0.680				D129					0.652
T5									D170					
T6									S1g.					
T7									T2	N	D47	D88	D129	D170
T8									N		0.449	0.029	0.697	0.709
S1b.									D47			0.182	0.713	0.254
D47	T1	T2	T3	T4	T5	T6	T7	T8	D88				0.081	0.008
T1		0.219	0.028	0.001	***	0.788	0.334	0.471	D129					0.442
T2			0.361	0.044	0.016	0.339	0.026	0.549	D170					
T3				0.271	0.128	0.057	0.001	0.108	S1h.					
T4					0.650	0.002	***	0.004	T3	N	D47	D88	D129	D170
T5						***	***	0.001	N		0.422	0.013	0.274	0.870
T6								0.217	D47			0.106	0.779	0.334
T7								0.074	D88				0.177	0.008
T8									D129					0.208
S1c.									D170					
D88	T1	T2	T3	T4	T5	T6	T7	T8	S1i.					
T1		0.045	0.002	0.003	0.002	0.767	0.440	0.139	T4	N	D47	D88	D129	D170
T2			0.220	0.267	0.247	0.020	0.004	0.505	N		0.608	0.240	0.880	0.412
T3				0.890	0.935	0.001	***	0.051	D47			0.498	0.715	0.180
T4					0.955	0.001	***	0.067	D88				0.299	0.046
T5						0.001	***	0.060	D129					0.329
T6								0.635	D170					
T7								0.018	S1j.					
T8									T5	N	D47	D88	D129	D170
S1d.									N		0.582	0.364	0.687	0.648
D129	T1	T2	T3	T4	T5	T6	T7	T8	D47			0.711	0.880	0.928
T1		0.053	***	***	***	***	***	***	D88				0.603	0.650
T2			0.069	0.035	0.005	0.038	0.001	***	D129					0.953
T3				0.779	0.313	0.807	0.111	0.031	D170					
T4					0.461	0.972	0.179	0.051	S1k.					
T5						0.440	0.507	0.158	T6	N	D47	D88	D129	D170
T6								0.168	N					
T7								0.048	D47			0.762	0.050	0.163
T8								0.376	D88				0.106	0.282
S1e.									D129					0.624
D170	T1	T2	T3	T4	T5	T6	T7	T8	D170					
T1		0.154	0.011	0.001	***	***	***	***	S1l.					
T2			0.263	0.077	***	0.016	***	***	T7	N	D47	D88	D129	D170
T3				0.532	0.008	0.223	***	0.002	N					
T4					0.047	0.559	0.004	0.013	D47			0.371	***	***
T5						0.158	0.223	0.596	D88				0.001	***
T6								0.020	D129					0.516
T7								0.057	D170					
T8								0.359	S1m.					
S1f.									T8	N	D47	D88	D129	D170
S1g.									N					
S1h.									D47			0.162	***	0.003
S1i.									D88				0.029	0.139
S1j.									D129					0.375
S1k.									D170					
S1l.														
S1m.														

PROPORTION OF TIME IN FRONTAL ZONE

Table S2a-m. Showing p-values of pairwise contrasts for the analysis of time in frontal zone (see Fig. 3b)

S2a.								
N	T1	T2	T3	T4	T5	T6	T7	T8
T1		0.959	0.364	0.581	0.855			
T2			0.337	0.616	0.895			
T3				0.144	0.274			
T4					0.712			
T5								
T6								
T7								
T8								

S2b.								
D47	T1	T2	T3	T4	T5	T6	T7	T8
T1		0.233	0.955	0.910	0.563	0.303	0.078	0.113
T2			0.255	0.279	0.536	0.035	0.011	0.012
T3				0.955	0.602	0.280	0.073	0.104
T4					0.642	0.258	0.068	0.096
T5						0.123	0.035	0.045
T6							0.230	0.433
T7								0.368
T8								

S2c.								
D88	T1	T2	T3	T4	T5	T6	T7	T8
T1		0.758	0.777	0.265	0.258	0.052	***	***
T2			0.981	0.424	0.415	0.109	0.001	***
T3				0.410	0.401	0.103	0.001	***
T4					0.988	0.437	0.013	0.010
T5						0.447	0.014	0.010
T6							0.074	0.054
T7								0.783
T8								

S2d.								
D129	T1	T2	T3	T4	T5	T6	T7	T8
T1		0.477	0.802	0.628	0.384	0.696	0.837	0.656
T2			0.336	0.231	0.111	0.748	0.613	0.220
T3				0.815	0.537	0.521	0.648	0.862
T4					0.702	0.381	0.489	0.937
T5						0.205	0.280	0.623
T6							0.853	0.383
T7								0.503
T8								

S2e.								
D170	T1	T2	T3	T4	T5	T6	T7	T8
T1		0.918	0.327	0.863	0.358	0.011	***	0.002
T2			0.364	0.945	0.312	0.009	***	0.001
T3				0.391	0.102	0.002	***	***
T4					0.285	0.008	***	0.001
T5						0.105	0.001	0.036
T6							0.126	0.773
T7								0.165
T8								

S2f.					
T1	N	D47	D88	D129	D170
N		0.655	0.149	0.151	0.305
D47			0.044	0.044	0.535
D88				0.978	0.007
D129					0.007
D170					

S2g.					
T2	N	D47	D88	D129	D170
N		0.654	0.217	0.037	0.285
D47			0.429	0.110	0.112
D88				0.468	0.014
D129					***
D170					

S2h.					
T3	N	D47	D88	D129	D170
N		0.257	0.637	0.625	0.012
D47			0.089	0.081	0.134
D88				0.993	0.001
D129					0.001
D170					

S2i.					
T4	N	D47	D88	D129	D170
N		0.942	0.306	0.122	0.456
D47			0.331	0.133	0.397
D88				0.642	0.073
D129					0.016
D170					

S2j.					
T5	N	D47	D88	D129	D170
N		0.909	0.477	0.352	0.893
D47			0.539	0.403	0.800
D88				0.840	0.396
D129					0.283
D170					

S2k.					
T6	N	D47	D88	D129	D170
N					
D47			0.211	0.001	0.022
D88				0.075	0.330
D129					0.489
D170					

S2l.					
T7	N	D47	D88	D129	D170
N					
D47			0.311	***	***
D88				***	***
D129					0.530
D170					

S2m.					
T8	N	D47	D88	D129	D170
N					
D47			0.879	0.001	0.001
D88				0.001	0.001
D129					0.924
D170					

PROPORTION OF TIME IN BOTTOM ZONE

Table S3a-m. Showing p-values of pairwise contrasts for the analysis of time in bottom zone (see Fig. 3c)

S3a.

N	T1	T2	T3	T4	T5	T6	T7	T8
T1		0.951	0.133	0.006	0.010			
T2			0.150	0.007	0.013			
T3				0.207	0.298			
T4					0.802			
T5								
T6								
T7								
T8								

S3b.

D47	T1	T2	T3	T4	T5	T6	T7	T8
T1		0.518	0.204	0.027	0.030	0.016	0.016	0.016
T2			0.525	0.093	0.104	0.049	0.049	0.047
T3				0.235	0.264	0.110	0.109	0.103
T4					0.920	0.389	0.385	0.342
T5						0.357	0.315	
T6							0.990	0.883
T7								0.893
T8								

S3c.

D88	T1	T2	T3	T4	T5	T6	T7	T8
T1		0.095	0.036	0.042	0.021	0.058	0.078	0.104
T2			0.560	0.635	0.328	0.777	0.911	0.869
T3				0.907	0.638	0.755	0.632	0.428
T4					0.564	0.844	0.714	0.499
T5						0.455	0.374	0.229
T6							0.863	0.638
T7								0.775
T8								

S3d.

D129	T1	T2	T3	T4	T5	T6	T7	T8
T1		0.243	0.056	0.065	0.020	0.007	0.007	0.096
T2			0.437	0.478	0.203	0.075	0.067	0.657
T3				0.943	0.576	0.210	0.182	0.685
T4					0.531	0.193	0.168	0.744
T5						0.401	0.339	0.321
T6							0.862	0.101
T7								0.088
T8								

S3e.

D170	T1	T2	T3	T4	T5	T6	T7	T8
T1		0.177	0.032	0.434	0.495	0.244	0.014	0.014
T2			0.443	0.578	0.038	0.009	***	***
T3				0.187	0.003	***	***	***
T4					0.139	0.049	0.001	0.001
T5						0.626	0.049	0.052
T6							0.095	0.104
T7								0.778
T8								

S3f.

T1	N	D47	D88	D129	D170
N		0.517	0.547	0.675	0.556
D47			0.965	0.820	0.954
D88				0.855	0.988
D129					0.866
D170					

S3g.

T2	N	D47	D88	D129	D170
N		0.303	0.078	0.261	0.774
D47			0.499	0.933	0.177
D88				0.551	0.033
D129					0.146
D170					

S3h.

T3	N	D47	D88	D129	D170
N		0.612	0.242	0.496	0.073
D47			0.495	0.863	0.013
D88				0.603	0.001
D129					0.006
D170					

S3i.

T4	N	D47	D88	D129	D170
N		0.631	0.806	0.813	0.075
D47			0.812	0.471	0.022
D88				0.629	0.041
D129					0.123
D170					

S3j.

T5	N	D47	D88	D129	D170
N		0.561	0.420	0.735	0.530
D47			0.798	0.797	0.229
D88				0.613	0.159
D129					0.332
D170					

S3k.

T6	N	D47	D88	D129	D170
N					
D47			0.341	0.680	0.142
D88				0.524	0.546
D129					0.228
D170					

S3l.

T7	N	D47	D88	D129	D170
N					
D47			0.293	0.759	0.835
D88				0.400	0.358
D129					0.917
D170					

S3m.

T8	N	D47	D88	D129	D170
N					
D47			0.186	0.121	0.615
D88				0.800	0.312
D129					0.209
D170					