**Supplemental Figure 1.** Time-course of circulating cortisol levels following a 3 minute air exposure (0, 15, 30, 60, 90, 120, or 720 minutes post-stressor). Cortisol levels were measured using an enzyme-linked immunosorbent assay as described in the main text. A general linear model with time post-stressor as a fixed factor was fit, followed by Tukey's *post hoc* analysis to determine differences between sampling times. Values are reported as means ± SEM with $n = 4$ except at time = 0 min where $n = 7$ and time = 720 min where $n = 3$. Asterisks indicate a significant difference compared to the pre-stressor value (i.e. the value at time = 0 min).
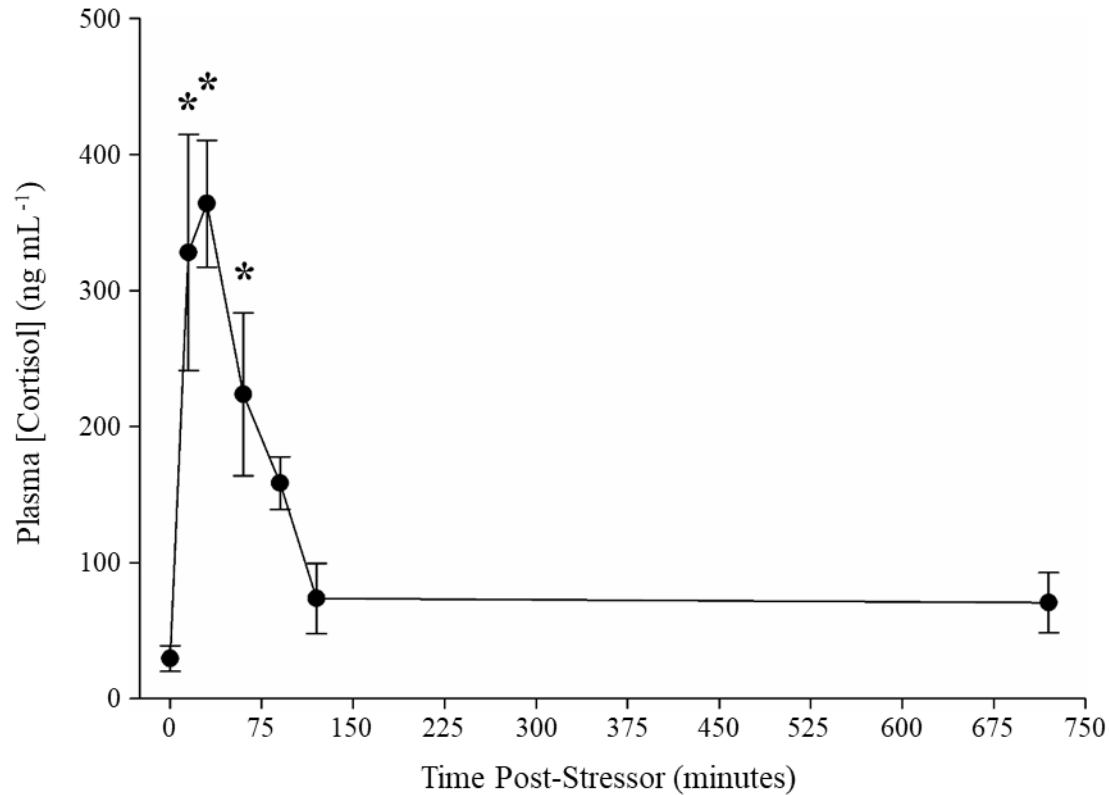
Supplemental Table 1. Comparison of pre-stressor rates of social and locomotor behaviours of individuals that eventually recovered within their own social group ($n = 14$) or alone ($n = 15$) in Experiment 1. Behaviours are reported as means ± SEM and were recorded over 5 min. General linear mixed models were fit that included recovery environment (with own social group vs. alone) as a fixed factor, and group id as a random factor to account for observation of multiple individuals from the same social groups.

Behaviour		Recovery Environment		X^2	p
		Own Group	Alone		
Aggression Received		2.7 ± 0.6	2.0 ± 0.3	0.01	0.98
Affiliative Acts	Received	0.4 ± 0.2	0.2 ± 0.1	0.63	0.43
	Performed	0.4 ± 0.2	0.5 ± 0.1	0.68	0.41
Time Near Group Members (s)		32.4 ± 5.9	28.1 ± 5.3	0.92	0.34
Activity (Grid Crosses)		34.8 ± 4.6	35.8 ± 6.6	0.11	0.94
Territory Usage (%)		24.1 ± 2.7	21.6 ± 2.4	0.49	0.49
Relative Time in Bottom of Tank (s)		142.4 ± 53.7	104.5 ± 46.6	0.67	0.41

Supplemental Table 2. Comparison of pre-stressor rates of social and locomotor behaviours of individuals that eventually recovered while physically separated from, but in view of their own social group ($n = 16$) or in view of a novel social group ($n = 17$) in Experiment 2. Behaviours are reported as means ± SEM and were recorded over 5 min. General linear mixed models were fit that included recovery environment (with own social group vs. novel social group) as a fixed factor, and group id was random factor to account for observation of multiple individuals from the same social groups. Significant differences ($p < 0.05$) are depicted in bold.

Behaviour		Recovery Environment		X^2	p
		Own Group	Novel Group		
Aggression Received		**3.6 ± 0.7**	**2.0 ± 0.5**	**4.15**	**0.04**
Affiliative Acts	Received	0.2 ± 0.1	0.1 ± 0.1	0.36	0.55
	Performed	0.8 ± 0.4	0.4 ± 0.2	0.05	0.83
Time Near Group Members (s)		31.4 ± 9.4	26.7 ± 4.9	0.02	0.88
Activity (Grid Crosses)		51.3 ± 5.6	56.5 ± 6.7	0.01	0.94
Territory Usage (%)		32.0 ± 3.2	29.6 ± 3.0	1.27	0.26
Relative Time in Bottom of Tank (s)		60.0 ± 50.8	89.7 ± 50.5	0.56	0.45

Supplemental Table 3. Gene specific primers used for real-time RT-PCR.

Gene	Primer Sequence (5' to 3')	Amplicon Size (bp)	Efficiency (%)	Annealing Temperature (°C)	Accession Number	Reference
18s	F: ACAAGAAGAGACCTTCACCTGG R: CTCAATCTCGTGTGGCTGAA	146	88	60	AF337051	O'Connor et al., 2013
β-actin	F: CGCTCCTCGTGCTGTCTTC R: TCTTCTCCATGTCATCCCAGTTG	179	107	60	XM_006797985	Zhao & Fernald, 2005
avt	F: TGCAATTCTGAGGGCTGTATG R: TCTTGAGCAGCAGATGGACG	182	102	60	KT266574	O'Connor et al., 2015
crf	F: ATCACCTTCCATCTTCAACAG R: CTGGACATCTCCATCATCTC	204	109	60	JX134406	Taborsky et al., 2013
it	F: GCTTCGGGCCAAGTATC R: GCAGAGTCATCTGATCATCC	181	101	60	KT277231	O'Connor et al., 2015
p450scc	F: AAGTCAGGGAGACTTGCTGG R: GGATGCAACCTGAGTGTTTCC	81	94	60	XM_006789280	Culbert et al., 2018
star	F: TCAGTGTCCGATGTGCCAAG R: TTTCCGCTCTGACAACACCC	105	108	60	XM_006805871	Culbert et al., 2018

18s, 18S ribosomal RNA; *β-actin*, beta-actin; *avt*, arginine vasotocin; *crf*, corticotropin-releasing factor; *it*, isotocin; *p450scc*, cytochrome P450 side-chain cleavage enzyme; *star*, steroidogenic acute regulatory protein.

Supplemental Table 4. Means ± SEM of affiliative behaviours observed while individuals recovered with their own social group ($n = 14$) in Experiment 1. General linear mixed models were fit that included time post-stressor as a fixed factor, and group id and individual id as random factors to account for repeated observations of multiple individuals from the same social groups. Affiliative acts included follows, parallel swims, and soft touches. Time near group members represents the duration of time that focal fish spent within a body length (~6 cm) of a groupmate. All behaviours were recorded over 5 min.

	Time Post-Stressor (min)						
Behaviour	**0-5**	**10-15**	**20-25**	**40-45**	**85-90**	X^2	p
Affiliative Acts Received	0.0 ± 0.0	0.1 ± 0.1	0.0 ± 0.0	0.3 ± 0.3	0.1 ± 0.1	4.45	0.35
Affiliative Acts Performed	0.1 ± 0.1	0.6 ± 0.4	0.4 ± 0.3	0.3 ± 0.3	0.0 ± 0.0	5.22	0.26
Time Near Group Members (s)	24.4 ± 5.5	24.4 ± 4.2	22.9 ± 6.2	22.3 ± 9.7	20.6 ± 6.3	0.62	0.96

Supplemental Table 5. Transcriptional responses in the head kidney of *N. pulcher* that recovered from an acute stressor with their own social group or by themselves in Experiment 1. Data are expressed relative to individuals that were sampled after 25 minutes of recovering by themselves. Data are reported as means ± SEM. Significant differences ($p < 0.05$) are depicted in bold and differences between groups are indicated using letters.

	25 min Post-Stressor		90 min Post-Stressor			X^2	p
	Group (*n* = 7)	Alone (*n* = 8)	Group (*n* = 7)	Alone (*n* = 7)			
P450scc	2.75 ± 0.57 [a]	1.16 ± 0.25 [b]	1.70 ± 0.39	1.16 ± 0.30	Treatment	2.89	0.09
					Time	2.99	0.08
					Treatment * Time	**5.03**	**0.02**
StAR	2.81 ± 0.78	1.29 ± 0.33	1.57 ± 0.42	1.08 ± 0.27	Treatment	0.01	0.91
					Time	0.04	0.84
					Treatment * Time	2.33	0.13

Supplemental Table 6. Transcriptional responses along the stress axis of *N. pulcher* while recovering from an acute stressor in visual contact with their own or a novel social group in Experiment 2. Data are expressed relative to helpers that were sampled after 25 minutes of recovering in sight of a novel group. Data are reported as means ± SEM.

		25 min Post-Stressor		90 min Post-Stressor			X^2	p
		Novel Group ($n = 9$)	Own Group ($n = 9$)	Novel Group ($n = 8$)	Own Group ($n = 7$)			
Preoptic Area	**AVT**	1.19 ± 0.21	1.07 ± 0.23	0.77 ± 0.28	0.76 ± 0.20	Treatment	0.17	0.68
						Time	2.53	0.11
						Treatment * Time	0.19	0.67
	CRF	1.11 ± 0.18	1.26 ± 0.14	1.16 ± 0.17	0.89 ± 0.09	Treatment	0.58	0.45
						Time	0.40	0.53
						Treatment * Time	1.05	0.31
	IT	1.10 ± 0.33	0.67 ± 0.11	0.68 ± 0.20	1.03 ± 0.39	Treatment	0.01	0.91
						Time	0.76	0.38
						Treatment * Time	1.22	0.27
Head Kidney	**P450scc**	1.61 ± 0.54	1.50 ± 0.33	1.06 ± 0.19	1.41 ± 0.36	Treatment	0.19	0.67
						Time	0.95	0.33
						Treatment * Time	0.16	0.69
	StAR	1.45 ± 0.39	1.57 ± 0.33	1.43 ± 0.31	1.29 ± 0.38	Treatment	0.04	0.84
						Time	0.31	0.58
						Treatment * Time	0.29	0.59

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