Table S1. ANOVA results for MT immunolabeling. Unless otherwise noted (for cell counts), data are shown as optical density measures, corrected for background.

Area	Field Sparrow (spring)	Field Sparrow (winter)	Song Sparrow (spring)	Song Sparrow (winter)	Species P	Season P	Species*Season P
POA-hypothalamus:							
POM	477.8 ± 132.6	487.3 ± 117.7	387.0 ± 92.4	325.0 ± 39.3	0.2285	0.7993	0.7293
PVN	628.0 ± 226.8	650.6 ± 249.2	452.0 ± 171.8	471.3 ± 103.7	0.3759	0.9161	0.9935
PVN cells per section/g bw*	13.9 ± 2.0	11.6 ± 1.6	7.5 ± 0.9	6.8 ± 0.5	**0.0006**	0.2870	0.5751
AH	561.2 ± 191.3	472.2 ± 102.7	310.2 ± 51.2	267.5 ± 21.5	0.0555	0.5631	0.8387
VMH, medial	229.6 ± 27.2	281.8 ± 64.9	179.5 ± 33.4	242.4 ± 23.3	0.2839	0.1724	0.8964
VMH, lateral	235.9 ± 28.2	248.0 ± 71.2	181.9 ± 31.9	232.3 ± 21.7	0.4266	0.4747	0.6605
Septum:							
LSc.d (pallial), rostral*	129.9 ± 10.6	280.9 ± 40.7	155.0 ± 34.9	184.9 ± 15.7	0.2270	**0.0047**	**0.0458**
subpallial LSc, rostral	93.9 ± 14.5	155.2 ± 15.8	112.6 ± 23.9	105.0 ± 12.5	0.3715	0.1343	0.0592
LSr	281.4 ± 30.4	541.5 ± 66.8	353.9 ± 79.6	400.0 ± 33.4	0.5490	**0.0137**	0.0735
LSc.d (pallial), caudal	117.5 ± 35.7	206.4 ± 45.7	151.1 ± 34.6	227.9 ± 28.7	0.4619	**0.0353**	0.8717
subpallial LSc, caudal	196.1 ± 22.2	210.5 ± 28.8	223.4 ± 23.0	236.5 ± 25.1	0.2980	0.5866	0.9802
nPC	194.0 ± 24.7	222.4 ± 21.7	173.6 ± 15.8	203.9 ± 65.2	0.6090	0.4414	0.9800
CcS	183.5 ± 49.3	99.1 ± 35.5	112.0 ± 38.4	113.3 ± 47.3	0.5130	0.3461	0.3311
Extended amygdala:							
MeA, anterior*	35.5 ± 3.9	81.4 ± 5.8	35.6 ± 3.4	37.4 ± 4.8	**0.0001**	**<0.0001**	**0.0001**
MeA, posterior*	37.7 ± 3.7	83.8 ± 13.4	41.9 ± 4.8	50.3 ± 2.7	0.0638	**0.0016**	**0.0204**
BSTm	31.1 ± 3.4	30.0 ± 1.3	24.8 ± 2.2	25.0 ± 2.6	**0.0343**	0.8517	0.8135
BSTL	58.1 ± 6.7	68.4 ± 3.9	58.8 ± 7.1	68.0 ± 3.0	0.9769	0.0877	0.9200
Midbrain:							
CG	148.4 ± 15.4	175.3 ± 26.4	126.0 ± 14.8	196.0 ± 19.0	0.9637	**0.0217**	0.2812
ICo	154.9 ± 13.9	151.6 ± 16.5	134.0 ± 12.9	195.8 ± 20.8	0.5264	0.1234	0.0888
VTA, rostral	140.8 ± 20.5	122.5 ± 26.4	178.2 ± 79.2	137.4 ± 22.3	0.5626	0.5138	0.8021
VTA, caudal	115.6 ± 17.7	84.6 ± 10.6	62.2 ± 13.7	106.5 ± 13.4	0.2758	0.6419	**0.0147**
Other:							
nAcc	138.4 ± 21.9	164.4 ± 33.0	305.5 ± 105.5	158.9 ± 23.3	0.1754	0.3074	0.1493

*Areas marked with an asterisk yield significant models following Benjamini-Hochberg corrections (α = 0.0091).

Table S2. ANOVA results for CRH immunolabeling. Unless otherwise noted (for cell counts), data are shown as optical density measures, corrected for background.

Area	Field Sparrow (spring)	Field Sparrow (winter)	Song Sparrow (spring)	Song Sparrow (winter)	Species P	Season P	Species*Season P
POA-hypothalamus:							
POM*	820.0 ± 193.1	349.8 ± 50.6	543.4 ± 80.2	268.1 ± 36.6	0.1162	**0.0027**	0.3820
PVN*	846.4 ± 85.7	437.4 ± 48.4	772.2 ± 84.9	343.6 ± 42.0	0.2331	**<0.0001**	0.8876
PVN cells per section/g bw (commissural)*	2.5 ± 0.5	2.2 ± 0.2	2.0 ± 0.4	1.2 ± 0.3	0.0696	0.1428	0.5427
AH*	552.1 ± 102.3	225.7 ± 47.1	374.4 ± 52.9	207.9 ± 35.4	0.1467	**0.0110**	0.2311
VMH, medial*	258.2 ± 55.2	215.1 ± 49.9	68.2 ± 8.6	43.7 ± 7.4	**0.0001**	0.3797	0.8064
VMH, lateral*	56.4 ± 11.6	47.8 ± 4.4	29.8 ± 6.4	20.1 ± 5.7	**0.0018**	0.2355	0.9425
Septum:							
LSc.d (pallial), rostral*	102.1 ± 17.3	259.9 ± 33.3	193.0 ± 45.0	200.0 ± 21.1	0.6242	**0.0156**	**0.0252**
subpallial LSc, rostral	168.0 ± 25.9	190.3 ± 25.9	198.7 ± 35.4	133.6 ± 18.1	0.6370	0.4384	0.1217
LSr*	145.6 ± 16.4	279.7 ± 21.9	250.7 ± 61.9	214.0 ± 19.2	0.5817	0.1813	**0.0248**
LSc.d (pallial), caudal	148.7 ± 30.7	244.3 ± 80.7	164.6 ± 44.0	191.1 ± 22.3	0.7154	0.2438	0.5034
subpallial LSc, caudal*	331.6 ± 21.3	310.7 ± 42.7	286.9 ± 28.3	227.2 ± 14.3	**0.0454**	0.1927	0.5221
nPC*	596.2 ± 105.6	444.9 ± 37.0	397.1 ± 61.5	291.9 ± 24.5	**0.0135**	0.0623	0.7267
CcS*	491.4 ± 103.2	266.5 ± 52.2	209.5 ± 32.9	147.2 ± 16.2	**0.0035**	**0.0281**	0.1954
Extended amygdala:							
MeA, anterior*	212.4 ± 22.4	297.9 ± 43.7	220.3 ± 49.2	76.9 ± 9.9	**0.0065**	0.4184	**0.0039**
MeA, posterior*	323.0 ± 26.0	421.9 ± 29.5	452.6 ± 46.9	199.6 ± 9.2	0.1496	**0.0217**	**<0.0001**
BSTm*	159.6 ± 23.9	70.5 ± 9.0	106.4 ± 12.7	58.6 ± 7.1	**0.0386**	**0.0002**	0.1762
BSTL*	469.9 ± 47.1	617.8 ± 61.1	546.5 ± 57.3	439.9 ± 41.37	0.3445	0.6976	**0.0245**
Midbrain:							
CG*	493.8 ± 73.6	375.8 ± 60.5	505.8 ± 40.4	276.9 ± 18.6	0.4186	**0.0036**	0.3039
ICo*	559.7 ± 31.2	392.7 ± 27.7	517.2 ± 69.1	348.0 ± 16.1	0.3015	**0.0006**	0.9796
VTA, rostral*	889.0 ± 53.1	485.7 ± 57.7	1003.9 ± 250.0	443.9 ± 46.0	0.5742	**0.0049**	0.3934
VTA, caudal*	637.2 ± 85.0	470.6 ± 46.0	637.5 ± 82.2	231.4 ± 65.7	0.1101	**0.0007**	0.1092
Other:							
nAcc*	163.7 ± 19.0	175.2 ± 34.0	464.9 ± 61.3	390.4 ± 85.5	**0.0002**	0.5802	0.4521

*Areas marked with an asterisk yield significant models following Benjamini-Hochberg corrections (α = 0.0454).

Table S3. ANOVA results for TH immunolabeling. Unless otherwise noted (for cell counts), data are shown as optical density measures, corrected for background.

Area	Field Sparrow (spring)	Field Sparrow (winter)	Song Sparrow (spring)	Song Sparrow (winter)	Species *P*	Season *P*	Species*Season *P*
POA-hypothalamus:							
POM*	173. 5 ± 17. 6	134. 1 ± 9. 5	125. 9 ± 6. 6	94. 7 ± 23. 3	**0.0156**	**0.0439**	0.8031
PVN*	462. 4 ± 84. 6	242. 1 ± 23. 1	271. 2 ± 43. 4	142. 7 ± 28. 5	**0.0067**	**0.0017**	0.3463
A14 cells per section/g bw (SPa)*	1. 1 ± 0. 2	0. 8 ± 0. 1	0. 3 ± 0. 1	0. 1 ± 0. 0	**<0.0001**	0.0668	0.6544
AH	144. 6 ± 12. 7	199. 0 ± 11. 6	113. 6 ± 5. 4	108. 3 ± 18. 4	0.1417	0.2705	0.4650
VMH, medial	106. 4 ± 39. 2	104. 9 ± 24. 1	94. 9 ± 11. 4	78. 5 ± 14. 3	0.3105	0.6281	0.6858
VMH, lateral	108. 4 ± 14. 5	106. 5 ± 23. 5	102. 2 ± 11. 9	76. ± 13. 9	0.3146	0.4429	0.5084
TH A12/g bw (ExM)*	2. 4 ± 0. 7	2. 9 ± 0. 4	1. 3 ± 0. 3	0. 6 ± 0. 1	**0.0008**	0.8051	0.1708
Septum:							
LSc.d (pallial), rostral	396. 9 ± 83. 5	324. 3 ± 71. 9	246. 4 ± 21. 0	199. 9 ± 37. 3	**0.0323**	0.3285	0.8287
subpallial LSc, rostral*	418. 0 ± 45. 5	281. 9 ± 32. 8	322. 7 ± 47. 7	165. 9 ± 29. 8	**0.0134**	**0.0013**	0.7915
LSr*	776. 9 ± 128. 6	606. 0 ± 91. 5	494. 2 ± 52. 8	285. 4 ± 43. 3	**0.0021**	**0.0366**	0.8242
LSc.d (pallial), caudal	148. 5 ± 75. 6	69. 6 ± 15. 7	94. 1 ± 22. 5	167. 4 ± 54. 8	0.6533	0.9531	0.1266
subpallial LSc, caudal*	1075. 9 ± 177. 1	704. 3 ± 46. 2	630. 2 ± 34. 3	538. 1 ± 139. 5	**0.0160**	0.0590	0.2401
nPC	132. 4 ± 48. 6	106. 0 ± 15. 8	145. 6 ± 9. 2	158. 1 ± 48. 0	0.3740	0.8488	0.5944
CcS	314. 2 ± 76. 5	350. 7 ± 48. 1	297. 3 ± 35. 5	256. 5 ± 48. 4	0.3137	0.9684	0.4797
Extended amygdala:							
MeA, anterior	278. 7 ± 37. 0	291. 0 ± 20. 3	280. 1 ± 22. 1	220. 6 ± 30. 7	0.2359	0.4124	0.2186
MeA, posterior*	139. 6 ± 3. 6	187. 0 ± 32. 4	137. 6 ± 10. 3	277. 5 ± 49. 4	0.1970	**0.0110**	0.1786
BSTm	140. 7 ± 38. 5	196. 4 ± 21. 9	233. 3 ± 27. 6	184. 2 ± 50. 6	0.2946	0.9292	0.1764
BSTL	219. 9 ± 37. 2	399. 9 ± 51. 3	363. 8 ± 54. 4	337. 5 ± 65. 3	0.4661	0.1773	0.0757
Midbrain:							
CG*	279. 1 ± 33. 4	172. 3 ± 10. 8	216. 1 ± 24. 4	191. 3 ± 27. 2	0.3852	**0.0158**	0.1138
A11 cells per section/g bw (CG)*	11. 0 ± 1. 2	9. 1 ± 1. 5	12. 1 ± 1. 3	4. 8 ± 2. 2	0.3462	**0.0130**	0.1224
ICo	127. 6 ± 8. 9	122. 7 ± 19. 5	92. 9 ± 5. 0	126. 8 ± 12. 7	0.2756	0.3008	0.1712
VTA, rostral*	806. 9 ± 58. 9	615. 8 ± 70. 2	502. 9 ± 97. 0	415. 6 ± 53. 1	**0.0022**	0.0644	0.4719
A10r cells/100 µm² (rostral VTA)*	32. 0 ± 0. 8	31. 2 ± 2. 7	18. 1 ± 1. 6	17. 3 ± 1. 9	**<0.0001**	0.6802	0.9851
VTA, caudal*	518. 2 ± 55. 6	416. 4 ± 27. 2	396. 6 ± 37. 9	290. 4 ± 66. 7	**0.0236**	0.0524	0.9665
A10c cells/100 µm² (caudal VTA)*	20. 3 ± 1. 7	21. 5 ± 2. 6	14. 3 ± 1. 6	12. 0 ± 4. 1	**0.0151**	0.8522	0.5547
Other:							
nAcc*	485. 9 ± 40. 1	401. 00 ± 55. 0	470. 5 ± 9. 3	324. 3 ± 56. 1	0.3426	**0.0249**	0.5241

*Areas marked with an asterisk yield significant models following Benjamini-Hochberg corrections (α = 0.0288).

Table S4. ANOVA results for VT immunolabeling. Unless otherwise noted (for cell counts), data are shown as optical density measures, corrected for background.

Area	Field Sparrow (spring)	Field Sparrow (winter)	Song Sparrow (spring)	Song Sparrow (winter)	Species *P*	Season *P*	Species*Season *P*
POA-hypothalamus:							
POM*	461. 4 ± 37. 9	169. 2 ± 37. 2	449. 5 ± 34. 0	116. 8 ± 23. 1	0.3486	**<0.0001**	0.5536
PVN*	1059. 3 ± 120. 0	802. 7 ± 191. 4	1149. 6 ± 86. 2	227. 6 ± 61. 1	0.0661	**0.0001**	**0.0148**
PVN cells per section/g bw*	4. 4 ± 0. 6	4. 0 ± 0. 6	3. 7 ± 0. 3	1. 0 ± 0. 2	**0.0012**	**0.0051**	**0.0285**
AH*	321. 6 ± 43. 3	152. 9 ± 27. 8	299. 3 ± 28. 6	107. 0 ± 23. 3	0.2939	**<0.0001**	0.7142
VMH, medial*	76. 5 ± 6. 0	51. 8 ± 10. 3	59. 4 ± 6. 5	44. 4 ± 11. 0	0.1753	**0.0348**	0.5859
VMH, lateral*	100. 6 ± 7. 5	47. 8 ± 8. 7	59. 6 ± 6. 5	41. 9 ± 10. 7	**0.0119**	**0.0005**	0.0514
Septum:							
subpallial LSc, rostral*	70. 6 ± 8. 6	60. 5 ± 8. 9	114. 9 ± 19. 7	73. 3 ± 5. 5	**0.0268**	**0.0430**	0.2029
LSc.d (pallial), caudal	101. 2 ± 13. 6	117. 5 ± 15. 9	108. 8 ± 11. 5	101. 0 ± 11. 2	0.7416	0.7487	0.3713
subpallial LSc, caudal*	154. 4 ± 12. 8	117. 6 ± 11. 9	203. 4 ± 16. 2	117. 4 ± 8. 4	0.0684	**<0.0001**	0.0656
nPC*	138. 0 ± 24. 2	103. 8 ± 10. 4	139. 4 ± 17. 5	86. 8 ± 10. 8	0.6434	**0.0170**	0.5884
CcS*	610. 9 ± 126. 6	83. 9 ± 12. 8	542. 4 ± 53. 2	72. 8 ± 12. 3	0.5717	**<0.0001**	0.6827
Extended amygdala:							
MeA, anterior	95. 4 ± 18. 1	57. 1 ± 13. 0	101. 5 ± 13. 2	90. 2 ± 7. 4	0.1613	0.0808	0.3289
MeA, posterior	147. 7 ± 8. 1	132. 5 ± 11. 8	143. 0 ± 8. 5	129. 1 ± 12. 1	0.6941	0.1717	0.9517
BSTm*	296. 3 ± 80. 2	36. 6 ± 6. 5	188. 8 ± 0. 14. 8	30. 7 ± 7. 5	**0.0064**	**<0.0001**	**0.0130**
BSTL*	72. 0 ± 0. 6	70. 6 ± 3. 6	86. 5 ± 14. 6	84. 3 ± 6. 6	**0.0005**	0.6057	0.9100
Midbrain:							
CG*	294. 8 ± 45. 3	144. 0 ± 22. 8	183. 4 ± 7. 3	106. 5 ± 6. 3	**0.0092**	**0.0003**	0.1677
ICo*	401. 5 ± 114. 4	193. 9 ± 18. 2	288. 9 ± 23. 14	183. 7 ± 21. 8	0.0519	**<0.0001**	0.0998
VTA, rostral*	234. 8 ± 32. 3	132. 0 ± 13. 6	238. 1 ± 15. 8	108. 3 ± 13. 9	0.6258	**<0.0001**	0.5152
VTA, caudal*	283. 0 ± 29. 9	142. 3 ± 14. 9	271. 4 ± 25. 3	120. 2 ± 21. 8	0.4839	**<0.0001**	0.8279
Other:							
nAcc*	164. 7 ± 17. 9	123. 1 ± 55. 5	110. 4 ± 6. 8	59. 7 ± 4. 3	**0.0323**	**0.0025**	0.9094

*Areas marked with an asterisk yield significant models following Benjamini-Hochberg corrections (α = 0.0475)

Table S5. ANOVA results for VIP immunolabeling. Unless otherwise noted (for cell counts), data are shown as optical density measures, corrected for background.

Area	Field Sparrow (spring)	Field Sparrow (winter)	Song Sparrow (spring)	Song Sparrow (winter)	Species P	Season P	Species*Season P
POA-hypothalamus:							
POM*	119. 7 ± 13. 6	103. 5 ± 24. 7	139. 7 ± 17. 1	52. 9 ± 11. 1	0.3897	**0.0076**	0.0559
PVN*	187. 0 ± 21. 4	132. 8 ± 25. 9	258. 2 ± 24. 2	76. 8 ± 17. 1	0.7398	**<0.0001**	**0.0102**
AH*	117. 6 ± 12. 9	120. 5 ± 21. 2	161. 0 ± 12. 4	60. 8 ± 12. 5	0.5977	**0.0046**	**0.0029**
VMH, medial*	84. 635 ± 10. 0	65. 9 ± 12. 4	29. 6 ± 3. 6	29. 3 ± 9. 1	**<0.0001**	0.3359	0.3196
VMH, lateral*	56. 1 ± 5. 1	41. 5 ± 11. 5	26. 4 ± 3. 7	22. 3 ± 6. 3	**0.0031**	0.2105	0.4737
Tuberal cells per section/g bw (periventricular)*	1. 0 ± 0. 2	0. 0 ± 0. 0	2. 1 ± 0. 3	0. 0 ± 0. 0	**0.0044**	**<0.0001**	**0.0062**
Septum:							
LSc.d (pallial), rostral	54. 1 ± 13. 6	46. 5 ± 24. 1	61. 0 ± 11. 4	69. 0 ± 2. 2	0.1645	0.9821	0.4531
subpallial LSc, rostral*	137. 9 ± 12. 0	118. 6 ± 12. 9	179. 4 ± 22. 9	87. 33 ± 26. 4	0.7446	**0.0018**	**0.0287**
LSr	64. 3 ± 12. 5	77. 7 ± 17. 5	79. 0 ± 11. 1	72. 5 ± 3. 3	0.7016	0.7779	0.4262
LSc.d (pallial), caudal	105. 9 ± 10. 6	104. 6 ± 12. 6	128. 9 ± 16. 3	93. 8 ± 7. 7	0.6237	0.1513	0.1810
subpallial LSc, caudal	212. 0 ± 53. 1	166. 7 ± 15. 6	175. 4 ± 21. 5	139. 5 ± 9. 9	0.0890	**0.0340**	0.7925
nPC	68. 3 ± 16. 4	36. 9 ± 10. 3	74. 4 ± 14. 0	57. 1 ± 7. 9	0.3104	0.0675	0.5829
CcS*	176. 9 ± 10. 9	140. 5 ± 15. 3	255. 5 ± 15. 5	56. 5 ± 6. 1	0.8328	**<0.0001**	**<0.0001**
Extended amygdala:							
MeA, anterior*	61. 7 ± 5. 0	43. 3 ± 4. 1	95. 7 ± 6. 8	95. 2 ± 4. 1	**<0.0001**	0.0807	0.0964
MeA, posterior*	71. 5 ± 3. 9	52. 3 ± 5. 8	73. 5 ± 5. 0	79. 0 ± 8. 6	**0.0286**	0.2740	0.0556
BSTm*	83. 4 ± 6. 2	64. 0 ± 6. 7	81. 5 ± 9. 3	32. 8 ± 3. 2	**0.0229**	**<0.0001**	**0.0407**
BSTL	150. 22 ± 15. 4	150. 8 ± 9. 4	181. 4 ± 20. 5	173. 3 ± 16. 3	0.1074	0.8155	0.7867
Midbrain:							
CG*	90. 3 ± 5. 1	84. 2 ± 5. 6	78. 6 ± 3. 1	60. 0 ± 5. 0	**0.0013**	**0.0180**	0.2094
ICo*	143. 9 ± 12. 9	111. 8 ± 6. 4	103. 8 ± 5. 4	104. 5 ± 10. 9	**0.0206**	0.1127	0.0971
VTA, rostral	114. 2 ± 26. 5	61. 3 ± 11. 9	90. 9 ± 12. 8	74. 0 ± 16. 6	0.7714	0.0662	0.3282
VTA, caudal*	94. 5 ± 14. 2	66. 3 ± 2. 7	108. 5 ± 6. 1	70. 8 ± 11. 9	0.3604	**0.0032**	0.6360
Other:							
nAcc*	187. 2 ± 17. 7	157. 8 ± 22. 5	238. 5 ± 33. 6	114. 3 ± 14. 9	0.8672	**0.0036**	0.0557

*Areas marked with an asterisk yield significant models following Benjamini-Hochberg corrections (α = 0.0318).

Table S6. ANOVA results for optical density of ARO, corrected for background, in major sites of ARO production.

Area	Field Sparrow (spring)	Field Sparrow (winter)	Song Sparrow (spring)	Song Sparrow (winter)	Species P	Season P	Species*Season P
POA-hypothalamus:							
VMH, lateral*	447. 5 ± 76. 8	596. 0 ± 23. 5	441. 2 ± 39. 0	523. 2 ± 41. 4	0.4316	**0.0297**	0.5072
Septum:							
nPC	265. 0 ± 43. 7	264. 1 ± 17. 0	219. 4 ± 25. 2	219. 4 ± 25. 2	0.6187	0.3327	0.3183
Extended amygdala:							
MeA, anterior*	116. 6 ± 14. 0	186. 4 ± 25. 5	190. 3 ± 41. 5	89. 6 ± 13. 2	0.6641	0.5629	**0.0040**
MeA, posterior*	175. 5 ± 7. 3	219. 9 ± 44. 5	252. 9 ± 25. 4	286. 0 ± 31. 5	**0.0282**	0.2157	0.8537
BSTm*	97. 4 ± 8. 7	68. 8 ± 8. 6	93. 4 ± 3. 7	53. 1 ± 4. 2	0.1584	**<0.0001**	0.3933

*Areas marked with an asterisk yield significant models following Benjamini-Hochberg corrections (α = 0.0400).

Table S7. Results of simple regressions between MT immunolabeling and measures of aggression (average response latency for field sparrows and aggression PC1 for song sparrows). Both aggression indices are negatively related to aggression. Unless otherwise noted (for cell counts), data are shown as optical density measures, corrected for background.

Area	Field Sparrow mean latency		Song Sparrow PC1	
	r	P	r	P
POA-hypothalamus:				
POM	-0.468	0.3494	-0.358	0.4857
PVN	-0.588	0.2196	-0.441	0.3811
PVN cells per section/g bw	**-0.872**	**0.0234**	-0.770	0.0732
AH	-0.633	0.1772	-0.451	0.3698
VMH, medial	0.087	0.5715	0.265	0.6123
VMH, lateral	0.280	0.5905	0.157	0.7671
Septum:				
LSc.d (pallial), rostral	0.495	0.3182	**0.888**	**0.0182**
subpallial LSc, rostral	-0.176	0.7381	**0.884**	**0.0193**
LSr	0.577	0.2301	**0.968**	**0.0015***
LSc.d (pallial), caudal	**0.868**	**0.0251**	-0.231	0.6590
subpallial LSc, caudal	**0.905**	**0.0132**	-0.108	0.8385
nPC	-0.395	0.4389	0.405	0.3645
CcS	-0.330	0.5224	-0.700	0.1216
Extended amygdala:				
MeA, anterior	0.628	0.1819	0.028	0.9578
MeA, posterior	0.629	0.1811	0.290	0.5775
BSTm	0.190	0.7190	-0.807	0.0523
BSTL	0.416	0.4126	0.440	0.3825
Midbrain:				
CG	0.644	0.1672	0.559	0.2485
ICo	0.811	0.0501	0.784	0.0648
VTA, rostral	**-0.867**	**0.0255**	-0.200	0.7042
VTA, caudal	-0.530	0.2794	-0.209	0.6915
Other:				
nAcc	-0.279	0.5919	0.010	0.9849

*Regression significant following Benjamini-Hochberg corrections (α = 0.0022).

Table S8. Results of simple regressions between CRH immunolabeling and measures of aggression (as in Table S7).

Area	Field Sparrow mean latency		Song Sparrow PC1	
	r	P	r	P
POA-hypothalamus:				
POM	-0.215	0.6824	0.497	0.3162
PVN	-0.180	0.7336	0.724	0.1038
PVN cells per section/g bw	-0.745	0.0890	0.143	0.7870
AH	-0.527	0.2830	0.052	0.9220
VMH, medial	-0.154	0.7711	0.345	0.5026
VMH, lateral	-0.385	0.4512	0.348	0.4986
Septum:				
LSc.d (pallial), rostral	-0.234	0.6549	**0.875**	**0.0225**
subpallial LSc, rostral	-0.704	0.1187	**0.911**	**0.0115**
LSr	-0.193	0.7140	**0.936**	**0.0060**
LSc.d (pallial), caudal	0.726	0.1021	-0.455	0.3650
subpallial LSc, caudal	0.167	0.7524	-0.576	0.2317
nPC	-0.425	0.4004	-0.365	0.4773
CcS	-0.421	0.4053	-0.537	0.2720
Extended amygdala:				
MeA, anterior	-0.064	0.9036	-0.785	0.0646
MeA, posterior	-0.366	0.4758	**-0.916**	**0.0103**
BSTm	-0.346	0.5023	-0.622	0.1877
BSTL	-0.421	0.4062	-0.729	0.1004
Midbrain:				
CG	-0.410	0.4189	-0.326	0.5279
ICo	-0.065	0.9031	-0.309	0.5517
VTA, rostral	**-0.868**	**0.0250**	-0.307	0.5538
VTA, caudal	-0.521	0.2897	-0.689	0.1297
Other:				
nAcc	-0.810	0.0507	0.021	0.9680

*Regression significant following Benjamini-Hochberg corrections (α = 0.0022).

Table S9. Results of simple regressions between TH immunolabeling and measures of aggression (as in Table S7).

Area	Field Sparrow mean latency		Song Sparrow PC1	
	r	P	r	P
POA-hypothalamus:				
POM	-0.046	0.9411	0.189	0.7603
PVN	-0.764	0.1326	-0.735	0.1567
A14 cells per section/g bw (SPa)	-0.353	0.5603	-0.101	0.8715
AH	-0.833	0.0797	-0.739	0.1533
VMH, medial	-0.441	0.4576	**0.926**	**0.0237**
VMH, lateral	-0.451	0.4459	0.733	0.1584
TH A12 per section/g bw (ExM)	-0.122	0.8172	0.402	0.4295
Septum:				
LSc.d (pallial), rostral	0.876	0.0517	0.764	0.1323
subpallial LSc, rostral	0.463	0.4328	-0.067	0.9154
LSr	**0.952**	**0.0126**	-0.309	0.6135
LSc.d (pallial), caudal	0.769	0.1286	-0.415	0.4872
subpallial LSc, caudal	0.106	0.8651	0.828	0.0834
nPC	0.305	0.6182	0.566	0.3198
CcS	0.384	0.5228	0.598	0.2872
Extended amygdala:				
MeA, anterior	0.255	0.6791	0.568	0.3182
MeA, posterior	-0.019	0.9752	-0.305	0.6176
BSTm	-0.616	0.2681	0.706	0.1827
BSTL	-0.533	0.3550	0.329	0.5884
Midbrain:				
CG	-0.372	0.5372	0.419	0.4824
A11 cells per section/g bw (CG)	-0.302	0.6218	0.443	0.4554
ICo	0.676	0.2100	0.157	0.8009
VTA, rostral	-0.499	0.3924	-0.419	0.4828
A10r cells/100 μm^2 (rostral VTA)	0.019	0.9754	0.662	0.2237
VTA, caudal	0.161	0.7963	-0.420	0.4814
A10c cells/100 μm^2 (caudal VTA)	-0.541	0.3460	0.716	0.1739
Other:				
nAcc	0.361	0.5504	-0.194	0.7551

*Regression significant following Benjamini-Hochberg corrections (α = 0.0027).

Table S10. Results of simple regressions between VT immunolabeling and measures of aggression (as in Table S7).

Area	Field Sparrow mean latency		Song Sparrow PC1	
	r	P	r	P
POA-hypothalamus:				
POM	0.520	0.2905	0.463	0.3552
PVN	-0.629	0.1811	0.726	0.1021
PVN cells per section/g bw	-0.579	0.2283	-0.208	0.6932
AH	0.774	0.0705	0.250	0.6332
VMH, medial	-0.665	0.1497	0.395	0.4380
VMH, lateral	-0.196	0.7104	0.165	0.7546
Septum:				
LSc.d (pallial), rostral	0.263	0.6147	0.404	0.4273
subpallial LSc, rostral	0.037	0.9446	**0.843**	**0.0350**
LSr	0.485	0.3296	0.589	0.2182
LSc.d (pallial), caudal	-0.629	0.2559	0.029	0.9565
subpallial LSc, caudal	-0.537	0.3510	0.608	0.2003
nPC	-0.504	0.3080	0.154	0.7704
CcS	-0.085	0.8731	0.741	0.0918
Extended amygdala:				
MeA, anterior	-0.260	0.6184	0.510	0.3016
MeA, posterior	-0.265	0.6124	-0.434	0.3894
BSTm	-0.632	0.1792	0.612	0.1965
BSTL	0.119	0.8227	0.624	0.1851
Midbrain:				
CG	-0.279	0.5924	0.693	0.1268
ICo	-0.265	0.6121	0.280	0.5909
VTA, rostral	-0.218	0.6778	0.097	0.8552
VTA, caudal	-0.676	0.1407	-0.316	0.5420
Other:				
nAcc	-0.542	0.2668	0.197	0.7090

*Regression significant following Benjamini-Hochberg corrections (α = 0.0025).

Table S11. Results of simple regressions between VIP immunolabeling and measures of aggression (as in Table S7).

Area	Field Sparrow mean latency		Song Sparrow PC1	
	r	*P*	*r*	*P*
POA-hypothalamus:				
POM	-0.020	0.9700	-0.549	0.2587
PVN	-0.165	0.7554	-0.458	0.3607
AH	0.185	0.7263	**-0.860**	**0.0281**
VMH, medial	-0.275	0.5984	0.412	0.4171
VMH, lateral	-0.304	0.5580	0.463	0.3550
Tuberal cells per section/g bw (periventricular)	0.480	0.3349	0.584	0.3016
Septum:				
LSc.d (pallial), rostral	0.314	0.5439	0.152	0.7532
subpallial LSc, rostral	0.028	0.9579	-0.091	0.8645
LSr	0.548	0.2607	0.273	0.6014
LSc.d (pallial), caudal	0.501	0.3111	-0.218	0.6789
subpallial LSc, caudal	-0.085	0.8726	-0.350	0.4964
nPC	-0.050	0.9255	-0.065	0.9029
CcS	-0.360	0.4827	-0.370	0.4704
Extended amygdala:				
MeA, anterior	0.048	0.9279	0.742	0.0915
MeA, posterior	0.426	0.3994	-0.039	0.9420
BSTm	**-0.872**	**0.0234**	-0.604	0.2046
BSTL	0.398	0.4348	0.403	0.4284
Midbrain:				
CG	0.507	0.3043	0.041	0.9384
ICo	-0.287	0.5818	-0.137	0.7954
VTA, rostral	-0.272	0.6023	0.120	0.8209
VTA, caudal	-0.562	0.2454	-0.123	0.8163
Other:				
nAcc	**-0.891**	**0.0171**	-0.635	0.1759

*Regression significant following Benjamini-Hochberg corrections (α = 0.0022).

**Table S12.** Results of simple regressions between ARO immunolabeling and measures of aggression (as in Table S7).

Area	Field Sparrow mean latency		Song Sparrow PC1	
	r	*P*	*r*	*P*
POA-hypothalamus:				
VMH, lateral	0.428	0.3967	-0.147	0.7809
Septum:				
nPC	-0.541	0.2681	-0.118	0.8242
CcS	0.	0.	0.	0.
Extended amygdala:				
MeA, anterior	-0.261	0.6177	**-0.905**	**0.0132**
MeA, posterior	0.514	0.2968	**-0.835**	**0.0386**
BSTm	-0.359	0.4851	**-0.836**	**0.0381**

*Regression significant following Benjamini-Hochberg corrections (α = 0.0100).

Table S13. Results of simple regressions between immunolabeling and aggression PC1 from a combined analysis of field and song sparrows (Fig. 6). PC1 is negatively related to aggression. Unless otherwise noted (for cell counts), data are shown as optical density measures, corrected for background.

Area	VIP		VT		TH		ARO		CRH		MT	
	r	P	r	P	r	P	r	P	r	P	r	P
POA-hypothalamus:												
POM	-0.395	0.2298	0.311	0.3520	**0.702**	**0.0349**	-	-	0.492	0.1245	0.031	0.9284
PVN	-0.566	0.0698	-0.060	0.8615	0.504	0.1663	-	-	0.272	0.4182	-0.061	0.8588
AH	**-0.812**	**0.0024***	0.054	0.8749	**0.812**	**0.0078***	-	-	0.523	0.0986	0.288	0.3911
VMH, medial	**0.689**	**0.0191**	0.531	0.0930	0.370	0.3274	-	-	0.427	0.1900	0.396	0.2027
VMH, lateral	**0.872**	**0.0005***	0.578	0.0628	0.321	0.3998	-0.162	0.6342	0.311	0.3521	0.408	0.1876
Septum:												
LSc.d (pallial), rostral	0.163	0.6324	-	-	0.657	0.0546	-	-	-0.147	0.6652	0.126	0.7118
subpallial LSc, rostral	-0.380	0.2490	-0.284	0.3967	0.416	0.2656	-	-	0.189	0.5783	0.101	0.7676
LSr	0.013	0.9702	-	-	**0.680**	**0.0440**	-	-	-0.096	0.7795	0.078	0.8186
LSc.d (pallial), caudal	-0.413	0.2065	-0.268	0.4264	-0.291	0.4473	-	-	-0.247	0.4640	-0.463	0.1511
subpallial LSc, caudal	0.350	0.2906	-0.432	0.1845	0.542	0.1314	-	-	0.144	0.6727	**-0.625**	**0.0399**
nPC	0.013	0.9694	0.297	0.3759	-0.335	0.3776	0.291	0.3853	0.355	0.2837	0.338	0.3099
CcS	**-0.655**	**0.0286**	0.117	0.6026	-0.163	0.6747	-	-	**0.806**	**0.0027**	0.126	0.7128
Extended amygdala:												
MeA, anterior	-0.534	0.0909	-0.138	0.6856	0.158	0.6840	-0.593	0.0544	-0.065	0.8501	-0.085	0.8046
MeA, posterior	-0.083	0.8082	0.056	0.8698	0.143	0.7135	**-0.801**	**0.0030***	**-0.681**	**0.0212**	-0.136	0.6897
BSTm	-0.130	0.7023	**0.871**	**0.0005***	0.227	0.5573	0.383	0.2454	0.371	0.2613	0.242	0.4730
BSTL	-0.056	0.8690	-0.273	0.4165	-0.265	0.4903	-	-	-0.546	0.0824	0.144	0.6727
Midbrain:												
CG	0.460	0.1548	**0.774**	**0.0052**	0.647	0.0596	-	-	0.331	0.3201	0.540	0.0861
ICo	0.531	0.0926	**0.614**	**0.0446**	**0.898**	**0.0010***	-	-	0.170	0.6171	0.204	0.5466
VTA, rostral	0.107	0.7534	0.123	0.7190	0.343	0.3667	-	-	-0.196	0.5631	-0.130	0.7026
VTA, caudal	-0.444	0.1708	0.065	0.8490	0.651	0.0577	-	-	-0.119	0.7269	0.367	0.2673
Other:												
nAcc	-0.399	0.2237	**0.619**	**0.0424**	-0.034	0.9300	-	-	**-0.739**	**0.0094**	-0.312	0.3504
Cell group:												
VIP tuberal per section/g bw (periventricular)	-0.260	0.4688	-	-	-	-	-	-	-	-	-	-
VT PVN per section/g bw	-	-	0.171	0.6162	-	-	-	-	-	-	-	-
MT PVN per section/g bw	-	-	-	-	-	-	-	-	-	-	0.471	0.1440
CRH PVN per section/g bw	-	-	-	-	-	-	-	-	-0.061	0.8580	-	-
TH A10r/100 μm^2 (rostral VTA)	-	-	-	-	**0.866**	**0.0025***	-	-	-	-	-	-
TH A10c/100 μm^2 (caudal VTA)	-	-	-	-	0.651	0.0575	-	-	-	-	-	-
TH A11 per section/g bw (CG)	-	-	-	-	0.022	0.9551	-	-	-	-	-	-
TH A12 per section/g bw (ExM)	-	-	-	-	**0.620**	**0.0420**	-	-	-	-	-	-
TH A14 per section/g bw (SPa)	-	-	-	-	**0.866**	**0.0025***	-	-	-	-	-	-

*Regressions marked with an asterisk are significant following Benjamini-Hochberg corrections (α = VIP = 0.0045;
  for VT =0.0055; for TH = 0.0076; for ARO = 0.0100; for MT = 0.0022).
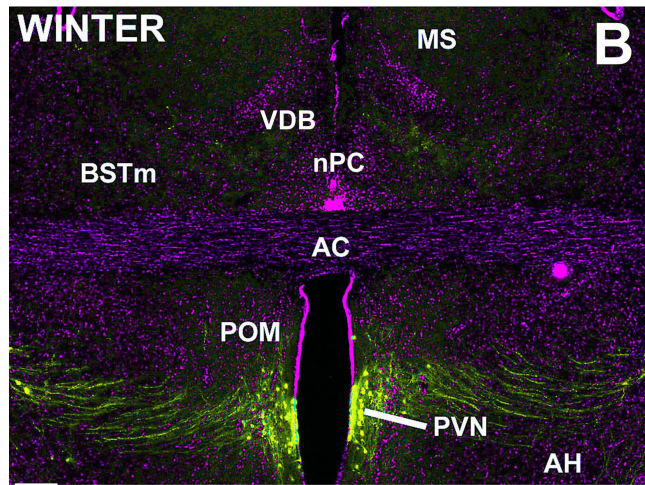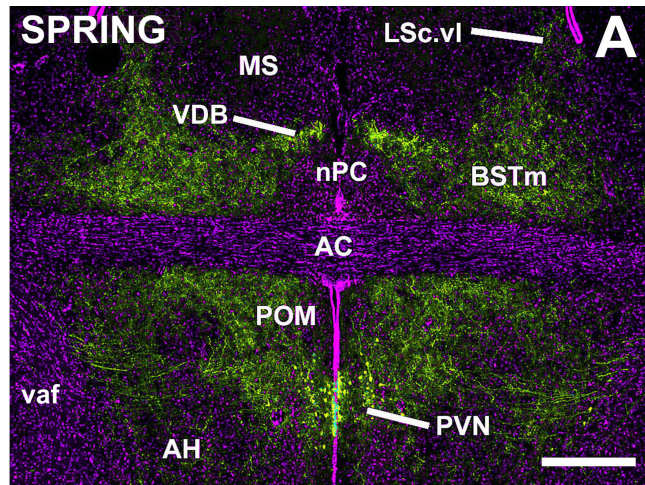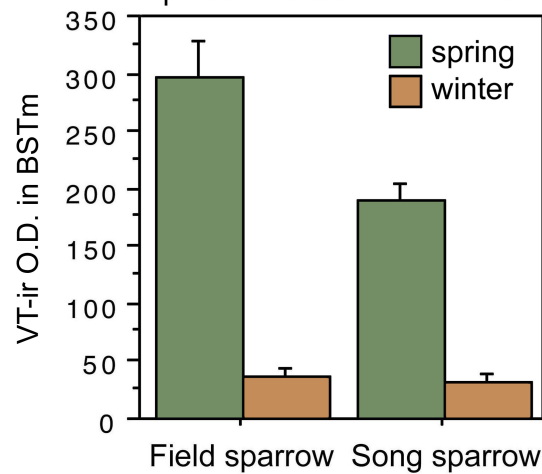
**Fig. S1.** (*A-B*) Seasonal variation in the VT innervation of the BSTm, vertical limb of the diagonal band (VDB), medial preoptic nucleus (POM) and hypothalamic areas of field sparrows. VT and DAPI are pseudocolored green and purple, respectively. Scale bar = 250 μm. (C) Optical density (O.D., in arbitrary units; corrected for background) of VT immunolabeling in the BSTm. Other abbreviations: AC, anterior commissure; AH, anterior hypothalamus; MS, medial septum; nPC, nucleus of the pallial commissure; PVN, paraventricular nucleus; vaf, ventral amygdalofugal tract.
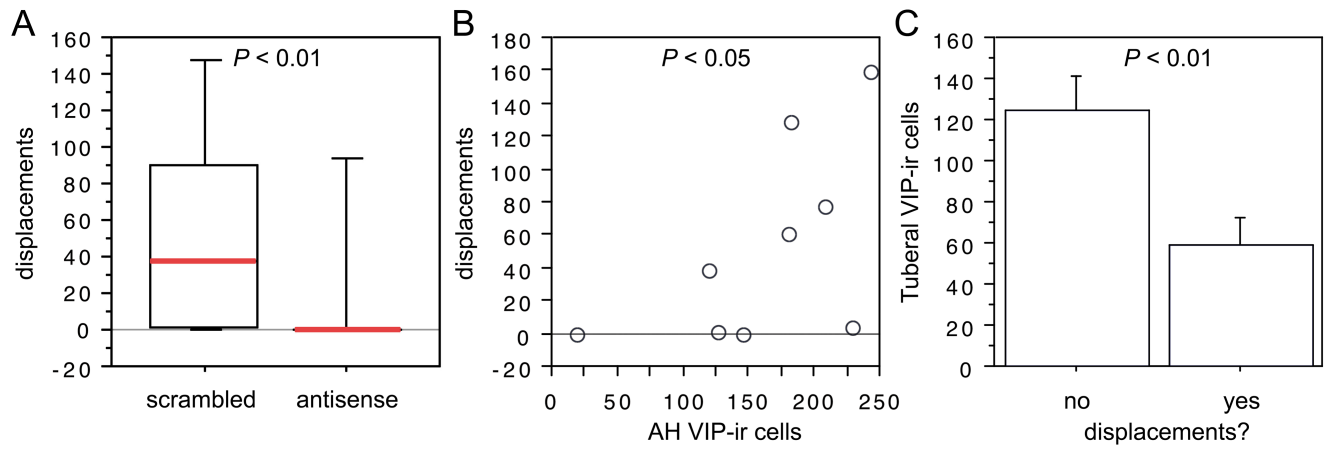
Fig. S2. (*A*) Antisense knockdown of VIP production in the AH of territorial violet-eared waxbills (*Uraeginthus granatina*) reduces aggression relative to subjects infused with scrambled oligonucleotides as a control. Resident-intruder tests were 3 min. There were no sex differences and sexes are shown pooled (*n* = 9 birds per treatment; data analyzed by Mann-Whitney). (*B*) A Spearman rank correlation of displacements and VIP-ir cell number in the AH (3 sections summed) of control subjects. (*C*) Although the number of VIP-ir neurons in the tuberal hypothalamus (2 sections summed) does not correlate with aggression, less aggressive subjects have significantly more neurons than do subjects that exhibit displacements during the 3 min test (analyzed by unpaired *t*-test). Data are as presented at the annual meeting of the Society for Behavioral Neuroendocrinology, Queretaro, Mexico, June 23-26, 2011.