Supporting Information for

Duration of temperature extremes determines coping ability in the threespine stickleback

Teija Isotalo, Lilla Rotenbiller and Ulrika Candolin

Map of the location of the spawning habitat of the investigated threespine stickleback populations
**Table S1.** Temperature in the spawning habitat of the investigated population in June during the spawning period.

| Year | Temperature °C |            |
|------|----------------|------------|
|      | Mean           | Variance   |
| 2010 | 14.1           | 2.1        |
| 2011 | 13.4           | 1.5        |
| 2012 | 12.9           | 1.1        |
| 2013 | 14.8           | 2.0        |
| 2014 | 14.6           | 1.8        |
| 2015 | 13.9           | 1.4        |
| 2016 | 14.5           | 1.3        |
| 2017 | 13.3           | 1.1        |
| 2018 | 15.0           | 1.5        |

**Table S2.** Male standard length and weight, and the duration of the two breeding cycles, in the four treatments: NN, NH, HN, and HH (N = normal temperature, H = high temperature, during first and second breeding cycle).

| Treatment | Male standard length (mm) | Male wet weight (g) | Duration of breeding cycles (days) |
|-----------|---------------------------|--------------------|-----------------------------------|
|           |                           |                    | Cycle 1  | Cycle 2 |
| NN        | Mean 61                   | 2.22               | 18.3    | 15.0    |
|           | N 18                      | 18                 | 18      | 18      |
|           | SD 4                      | 0.40               | 31      | 2.7     |
| NH        | Mean 61                   | 2.17               | 18.6    | 7.7     |
|           | N 18                      | 18                 | 18      | 18      |
|           | SD 4                      | 0.39               | 2.7     | 1.5     |
| HN        | Mean 63                   | 2.49               | 9.8     | 16.3    |
|           | N 18                      | 18                 | 18      | 18      |
|           | SD 4                      | 0.55               | 2.6     | 3.9     |
| HH        | Mean 62                   | 2.34               | 8.4     | 10.3    |
|           | N 18                      | 18                 | 18      | 18      |
|           | SD 4                      | 0.47               | 1.0     | 3.8     |
### Table S3. Principal components for courtship behaviours

| Component | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
|-----------|-------|---------------|--------------|-------|---------------|--------------|
| 1         | 2,905 | 72,613        | 72,613       | 2,905 | 72,613        | 72,613       |
| 2         | 1,728 | 18,192        | 90,805       |       |               |              |
| 3         | 1,296 | 7,393         | 98,198       |       |               |              |
| 4         | 0,072 | 1,802         | 100,000      |       |               |              |

#### Component Matrix

|                          | Component 1 |
|--------------------------|-------------|
| Mean leads               | .896        |
| Mean fanning bouts       | .948        |
| Mean fanning time        | .914        |
| Mean courting time       | .607        |

### Table S4. Principal components for parental care behaviours

| Component | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
|-----------|-------|---------------|--------------|-------|---------------|--------------|
| 1         | 2,839 | 94,633        | 94,633       | 2,839 | 94,633        | 94,633       |
| 2         | .133  | 4,428         | 99,061       |       |               |              |
| 3         | .028  | .939          | 100,000      |       |               |              |

#### Component Matrix

|                          | Component 1 |
|--------------------------|-------------|
| Fanning bouts            | .954        |
| Fanning time             | .983        |
| Nest directed behaviours, time | .981       |