**Table S1.** Mean  $\pm$  SE of upper critical thermal limits (CT<sub>max</sub>), maximum pond temperature (T<sub>max</sub>), Mean  $\pm$  SE of warming tolerance (WT), and Community of origin for the sampled 47 amphibian larvae species. (n) Number of tested larvae.

| Species                      | Species code | CTmax (°C) (n)      | Tmax (°C) | WT (°C)        | Community        |
|------------------------------|--------------|---------------------|-----------|----------------|------------------|
| Ceratophrys cranwelli        | Ccr          | 42.0 ± 0.1 (12)     | 40.6      | $1.4 \pm 0.1$  | Subtropical Warm |
| Dermatonotus muelleri        | Dmu          | $43.6 \pm 0.3 (14)$ | 41.4      | $2.2 \pm 0.3$  | Subtropical Warm |
| Elachistocleis bicolor       | Ebi          | 41.7 ± 0.2 (15)     | 34.2      | $7.5 \pm 0.2$  | Subtropical Warm |
| Hypsiboas raniceps           | Hra          | $41.2 \pm 0.2 (17)$ | 38.2      | $3.0 \pm 0.2$  | Subtropical Warm |
| Lepidobatrachus llanensis    | Lll          | 44.7 ± 0.2 (14)     | 40.6      | $4.2 \pm 0.2$  | Subtropical Warm |
| Leptodactylus bufonius       | Lbu          | $43.3 \pm 0.1 (30)$ | 40.1      | $3.2 \pm 0.1$  | Subtropical Warm |
| Leptodactylus latinasus      | Lla          | 42.5 ± 0.2 (15)     | 38.7      | $3.7 \pm 0.2$  | Subtropical Warm |
| Leptodactylus podicipinus    | Lpo          | $43.3 \pm 0.3 (7)$  | 38.7      | $4.6 \pm 0.3$  | Subtropical Warm |
| Phyllomedusa sauvagii        | Psa          | 42.1 ± 0.3 (12)     | 40.1      | $2.0 \pm 0.3$  | Subtropical Warm |
| Physalaemus albonotatus      | Pal          | 41.1 ± 0.2 (15)     | 40.1      | $1.0 \pm 0.2$  | Subtropical Warm |
| Pseudis limellum             | Pli          | $41.9 \pm 0.1 (14)$ | 38.2      | $3.7 \pm 0.1$  | Subtropical Warm |
| Pseudis platensis            | Ppl          | $42.3 \pm 0.1 (31)$ | 38.2      | $4.0 \pm 0.1$  | Subtropical Warm |
| Rhinella schneideri          | Rsc          | 42.5 ± 0.1 (10)     | 38.7      | $3.8 \pm 0.1$  | Subtropical Warm |
| Scinax acuminatus            | Sac          | $43.0 \pm 0.2 (16)$ | 38.2      | $4.8 \pm 0.2$  | Subtropical Warm |
| Scinax nasicus               | Sna          | 42.6 ± 0.2 (15)     | 38.2      | $4.4 \pm 0.2$  | Subtropical Warm |
| Trachycephalus venulosus     | Tve          | $41.9 \pm 0.1 (14)$ | 38.7      | $3.1 \pm 0.1$  | Subtropical Warm |
| Crossodactylus schmidti      | Csc          | $36.6 \pm 0.1 (13)$ | 25.2      | $11.5 \pm 0.1$ | Subtropical Cool |
| Dendropsophus minutus        | Dmi          | $40.6 \pm 0.1 (15)$ | 26.9      | $13.7 \pm 0.1$ | Subtropical Cool |
| Hypsiboas curupi             | Hcu          | 37.5 ± 0.2 (15)     | 27.8      | $9.7 \pm 0.2$  | Subtropical Cool |
| Leptodactylus latrans        | Llt          | $41.4 \pm 0.2 (17)$ | 25.6      | $15.8 \pm 0.2$ | Subtropical Cool |
| Limnomedusa macroglossa      | Lma          | $39.9 \pm 0.2 (15)$ | 27.8      | $12.1 \pm 0.2$ | Subtropical Cool |
| Melanophryniscus devincenzii | Mde          | 39.2 ± 0.1 (15)     | 21.3      | $17.9 \pm 0.1$ | Subtropical Cool |
| Melanophryniscus krauczuki   | Mkr          | 39.9 ± 0.2 (15)     | 24.7      | $15.2 \pm 0.2$ | Subtropical Cool |
| Phyllomedusa tetraploidea    | Pte          | 41.6 ± 0.2 (17)     | 34.2      | $7.4 \pm 0.2$  | Subtropical Cool |

| Rhinella azarai       | Raz | 40.4 ± 0.1 (15)     | 24.7 | $15.7 \pm 0.1$ | Subtropical Cool |
|-----------------------|-----|---------------------|------|----------------|------------------|
| Rhinella ornata       | Ror | $40.7 \pm 0.1 (16)$ | 30.4 | $10.3 \pm 0.1$ | Subtropical Cool |
| Scinax fuscovarius    | Sfu | $41.0 \pm 0.3 (15)$ | 25.6 | $15.4 \pm 0.3$ | Subtropical Cool |
| Alytes cisternasii    | Aci | $38.2 \pm 0.2 (15)$ | 24.2 | $14.1 \pm 0.2$ | Temperate        |
| Alytes dickhilleni    | Adi | $37.6 \pm 0.1 (15)$ | 25.1 | $12.5 \pm 0.1$ | Temperate        |
| Alytes muletensis     | Amu | $38.2 \pm 0.1 (15)$ | 19.4 | $18.8 \pm 0.1$ | Temperate        |
| Bufo bufo             | Bbu | $38.3 \pm 0.1 (15)$ | 23.8 | $14.4 \pm 0.1$ | Temperate        |
| Discoglossus galganoi | Dga | 38.4 ± 0.1 (15)     | 32.0 | $6.5 \pm 0.1$  | Temperate        |
| Epidalea calamita     | Eca | 39.7 ± 0.1 (30)     | 34.2 | $5.6 \pm 0.1$  | Temperate        |
| Hyla arborea          | Har | 40.0 ± 0.1 (15)     | 31.4 | $8.7 \pm 0.1$  | Temperate        |
| Hyla meridionalis     | Hme | 39.8 ± 0.1 (15)     | 34.2 | $5.7 \pm 0.1$  | Temperate        |
| Lissotriton boscai    | Lbo | $38.3 \pm 0.1 (15)$ | 31.4 | $7.0 \pm 0.1$  | Temperate        |
| Pelobates cultripes   | Pcu | 39.4 ± 0.1 (14)     | 35.5 | $3.9 \pm 0.1$  | Temperate        |
| Pelodytes ibericus    | Pib | $37.0 \pm 0.1 (30)$ | 35.5 | $1.4 \pm 0.1$  | Temperate        |
| Pelophylax lessonae   | Ple | $38.6 \pm 0.2 (17)$ | 29.9 | $8.7 \pm 0.2$  | Temperate        |
| Pelophylax perezi     | Ppe | 39.6 ± 0.2 (8)      | 29.1 | $10.6 \pm 0.2$ | Temperate        |
| Pleurodeles waltl     | Pwa | $37.1 \pm 0.1 (14)$ | 35.5 | $1.5 \pm 0.1$  | Temperate        |
| Rana arvalis          | Rar | $35.8 \pm 0.1 (15)$ | 18.8 | $17.0 \pm 0.0$ | Temperate        |
| Rana iberica          | Rib | $35.4 \pm 0.0 (15)$ | 29.1 | $6.4 \pm 0.0$  | Temperate        |
| Rana temporaria       | Rte | $37.2 \pm 0.2 (45)$ | 24.5 | $12.7 \pm 0.2$ | Temperate        |
| Salamandra salamandra | Ssa | $36.6 \pm 0.1 (10)$ | 24.2 | $12.4 \pm 0.1$ | Temperate        |
| Triturus cristatus    | Tcr | $37.8 \pm 0.2 (15)$ | 24.2 | $13.6 \pm 0.2$ | Temperate        |
| Triturus pygmaeus     | Тру | 38.5 ± 0.1 (10)     | 31.4 | 7.1 ± 0.1      | Temperate        |
|                       |     |                     |      |                |                  |