



Table 1. Priors utilised for dimorphism analyses. Weakly informative priors with means (μ) and wide standard deviations (σ) obtained from previous literature (Malhotra et al., 2011; Cox et al., 2012; Strine et al., 2015) and current work were used for all sexes, fecundity, and study areas. The Strine et al. (2015) priors were only used for males and females (only when fecundity was not assessed) in the forest study area when it was compared to the rural study area.

| Measurement | Weak | | Strine et al. (2015) Male | | Strine et al. (2015) Female | |
|-------------|--------|----------|---------------------------|----------|-----------------------------|----------|
| | μ | σ | μ | σ | μ | σ |
| SVL | 496 | 193 | 472.1 | 59.8 | 519.9 | 59.1 |
| TL | 106.85 | 93.1 | 117.2 | 24.2 | 96.5 | 21.7 |
| TBL | 602.85 | 218.15 | 589.3 | 65 | 616.4 | 70 |
| Mass | 38.45 | 70.55 | 31.1 | 8 | 45.8 | 16.6 |
| HL | 24.5 | 9.43 | 22.5 | 1.9 | 26.5 | 2.5 |
| HW | 16 | 6.7 | 14.6 | 1.5 | 17.4 | 1.9 |
| Girth | | | | | | |
| 25 % | - | - | - | - | - | - |
| 50 % | - | - | - | - | - | - |
| 75 % | - | - | - | - | - | - |
| SMI | 36.7 | 32.6 | 36 | 8.5 | 37.4 | 8.5 |

Table 2. Summary of mean differences between male and female *T. macrops* morphological measurements and standardised mass index (SMI, using Strine et al., 2015 as comparison population) using flat and weak priors with 95 % credible intervals. All measurements are larger for females, except for TL which is indicated by *.

| Measurement | Flat prior | Weak prior |
|-------------|--------------------|--------------------|
| SVL | 69.8 [46.0–93.5] | 69.6 [45.9–93.3] |
| TL | 17.6 [9.22–25.9] * | 17.6 [9.15–25.9] * |
| TBL | 52.2 [22.4–81.6] | 52 [22.4–81.5] |
| Mass | 22.5 [14.9–30] | 22.4 [14.8–29.9] |
| HL | 3.61 [2.4–4.81] | 3.6 [2.4–4.81] |
| HW | 2.49 [1.6–3.38] | 2.48 [1.6–3.37] |
| Girth | | |
| 25 % | 1.12 [0.515–1.71] | - |
| 50 % | 1.73 [0.97–2.5] | - |
| 75 % | 2.2 [1.34–3.07] | - |
| SMI | 2.08 [-1.8–6.14] | 2.07 [-2–6.12] |

Table 3. Probabilities of observing differences between male and female *T. macrops* morphological measurements and standardised mass index (SMI, using Strine et al., 2015 as comparison population) with flat and weak priors. All measurements are larger for females, except for TL which is indicated by *.

| Measurement | Difference | Flat prior | Weak prior |
|-------------|------------|------------|------------|
| SVL | > 30 mm | 99.9 | 99.9 |
| TL | > 5 mm | 99.8 * | 99.8 * |
| TBL | > 30 mm | 93.0 | 92.9 |
| Mass | > 15 g | 97.4 | 97.4 |
| HL | > 3 mm | 84.4 | 83.9 |
| HW | > 2 mm | 86.3 | 85.8 |
| Girth | | | |
| 25 % | > 0.1 mm | 99.9 | - |
| 50 % | > 0.1 mm | 100.0 | - |
| 75 % | > 0.1 mm | 100.0 | - |
| SMI | > 0 | 84.5 | 84.4 |

Table 4. Posterior summary and convergence statistics for regression models. M = male, F = female, G = gravid, NG = not gravid, Post. Mean =posterior mean; 95 % CI = 95 % credible interval; ESS = effective sample size; \hat{r} = Gelman-Rubin Statistic, WAIC = widely applicable information criterion, and LOOC = leave one out cross validation.

| Variables | Model | Post. Mean | 95 % CI | ESS | \hat{r} | WAIC | LOO |
|-----------|-------------------------------------|------------|--------------|--------|-----------|-------|-------|
| HL vs SVL | Mintercept | 6.27 | 2.27, 10.27 | 315490 | 1 | | |
| | MRes. SD (sigma) | 0.98 | 0.76, 1.28 | 269462 | 1 | | |
| | M | 0.04 | 0.03, 0.04 | 316144 | 1 | 91 | 91.1 |
| | Fintercept | 8.92 | 1.02, 16.81 | 308323 | 1 | | |
| | FRes. SD (sigma) | 2.71 | 2.18, 3.42 | 270371 | 1 | | |
| | F | 0.03 | 0.02, 0.05 | 308180 | 1 | 213.2 | 217.2 |
| HW vs SVL | Mintercept | 5.41 | 0.38, 10.48 | 306144 | 1 | | |
| | MRes. SD (sigma) | 1.24 | 0.96, 1.62 | 260027 | 1 | | |
| | M | 0.02 | 0.01, 0.03 | 306190 | 1 | 112.2 | 115.8 |
| | Fintercept | 4.94 | -0.51, 10.39 | 326002 | 1 | | |
| | FRes. SD (sigma) | 1.88 | 1.5, 2.37 | 280732 | 1 | | |
| | F | 0.02 | 0.01, 0.03 | 325727 | 1 | 177 | 180.2 |
| HL vs SMI | Mintercept | 27.78 | 24.41, 31.16 | 303935 | 1 | | |
| | MRes. SD (sigma) | 1.67 | 1.29, 2.18 | 260200 | 1 | | |
| | M | -0.11 | -0.19, -0.03 | 304272 | 1 | 125.9 | 126.2 |
| | Fintercept | 26.5 | 21.63, 31.36 | 314502 | 1 | | |
| | FRes. SD (sigma) | 3.39 | 2.72, 4.28 | 278960 | 1 | | |
| | F | 0.01 | -0.1, 0.12 | 314124 | 1 | 220.3 | 220.8 |
| HW vs SMI | Mintercept | 17.78 | 14.84, 20.73 | 310680 | 1 | | |
| | MRes. SD (sigma) | 1.46 | 1.13, 1.91 | 264709 | 1 | | |
| | M | -0.06 | -0.13, 0.01 | 309543 | 1 | 119.2 | 120.2 |
| | Fintercept | 16.24 | 12.86, 19.61 | 309535 | 1 | | |
| | FRes. SD (sigma) | 2.35 | 1.88, 2.96 | 292103 | 1 | | |
| | F | 0.03 | -0.04, 0.11 | 308808 | 1 | 188.9 | 189.2 |
| HL vs SMI | Gintercept | 32 | 22.32, 41.70 | 295962 | 1 | | |
| | GRes. SD (sigma) | 3.92 | 2.82, 5.58 | 242238 | 1 | | |
| | G | -0.1 | -0.3, 0.11 | 294854 | 1 | 115.6 | 117.4 |
| | NGintercept NGRes. SD (sigma) | 25.95 | 17.46, 34.45 | 259739 | 1 | | |
| | NG | -0.01 | -0.23, 0.22 | 259347 | 1 | 69.7 | 70.1 |
| | | | | | | | |
| HW vs SMI | Gintercept | 20.09 | 13.38, 26.77 | 288169 | 1 | | |
| | GRes. SD (sigma) | 2.72 | 1.95, 3.88 | 229851 | 1 | | |
| | G | -0.04 | -0.19, 0.10 | 287685 | 1 | 99.6 | 100.4 |
| | NGintercept NGRes. SD (sigma) | 17.2 | 12.07, 22.36 | 263350 | 1 | | |
| | NG | 2.03 | 1.31, 3.27 | 185620 | 1 | | |
| | | -0.02 | -0.16, 0.12 | 260993 | 1 | 56.2 | 56.5 |

Table 5. Summary of mean differences between male and female *T. macrops* morphological measurements and standardised mass index (SMI, using Strine et al., 2015 as comparison population) in forested (with flat and Strine et al., 2015 priors) and rural habitat with 95 % credible intervals. Girth was not measured by Strine et al. (2015) or previous study, hence “-“ for the use of this study as a prior. All measurements are larger for females, except for TL which is indicated by *.

| Measurement | Forest, flat | Forest, weak | Forest, Strine et al. 2015 | Rural, flat | Rural, weak |
|-------------|--------------------|--------------------|----------------------------|--------------------|-------------------|
| SVL | 64.1 [33.1–97.6] | 63.8 [31.1–96.1] | 63.4 [31.6–95] | 81.9 [42–123] | 81.2 [41.4–121] |
| TL | 18.3 [7.86–28.3] * | 18.2 [7.95–28.3] * | 18.3 [8.14–28.1] * | 17.4 [3.12–31.5] * | 17.3 [3.3–31.5] * |
| TBL | 45.9 [7.06–85.6] | 45.6 [6.34–84.7] | 45 [5.62–82.7] | 64.3 [13.6–116] | 63.8 [12.7–115] |
| Mass | 21.1 [12.3–29.7] | 21.1 [12.4–29.9] | 20.8 [12.5–29.3] | 27 [11.4–42.7] | 26.8 [11–42.4] |
| HL | 3.25 [1.6–4.85] | 3.23 [1.61–4.83] | 3.28 [1.74–4.83] | 4.65 [2.78–6.44] | 4.37 [2.6–6.18] |
| HW | 2.08 [0.655–3.44] | 2.07 [0.699–3.45] | 2.15 [0.863–3.49] | 3.25 [1.83–4.67] | 3.16 [1.72–4.58] |
| Girth | | | | | |
| 25 % | 0.978 [0.113–1.82] | - | - | 1.37 [0.299–2.43] | - |
| 50 % | 1.7 [0.711–2.62] | - | - | 1.98 [0.366–3.66] | - |
| 75 % | 1.99 [0.891–3.09] | - | - | 2.73 [1.13–4.3] | - |
| SMI | 4.09 [12.4–29.9] | 4.06 [-0.262–8.47] | 8.15 [-0.411–8.15] | 1.12 [-6.43–8.76] | 1.08 [-6.43–8.64] |

Table 6. Probabilities of observing differences between male and female *T. macrops* morphological measurements and standardised mass index (SMI, using Strine et al., 2015 as comparison population) in forested (with flat, weak, and Strine et al., 2015 priors) and rural habitat (with flat and weak priors). Girth was not measured by Strine et al. (2015) or previous study, hence “-“ for the use of this study as a prior. All measurements are larger for females, except for TL which is indicated by *.

| Measurement | Difference | Forest, flat | Forest, weak | Forest, Strine et al. 2015 | Rural, flat | Rural, weak |
|-------------|------------|--------------|--------------|----------------------------|-------------|-------------|
| SVL | > 30 mm | 98.0 | 97.9 | 98.0 | 99.3 | 99.3 |
| TL | > 5 mm | 99.3 * | 99.3 * | 99.5 * | 95.7 * | 95.8 * |
| TBL | > 30 mm | 79.3 | 78.9 | 78.5 | 91.1 | 90.8 |
| Mass | > 15 g | 92.0 | 91.7 | 91.4 | 94.7 | 93.5 |
| HL | > 3 mm | 62.1 | 61.2 | 64.4 | 96.2 | 93.6 |
| HW | > 2 mm | 54.7 | 54 | 59.0 | 96.1 | 94.8 |
| Girth | | | | | | |
| 25 % | > 0.1 mm | 97.8 | - | - | 98.9 | - |
| 50 % | > 0.1 mm | 99.9 | - | - | 98.6 | - |
| 75 % | > 0.1 mm | 99.9 | - | - | 99.9 | - |
| SMI | > 0 | 96.7 | 96.6 | 96.3 | 61.8 | 61.5 |

Table 7. Summary of mean differences between male and non- gravid female *T. macrops* morphological measurements and standardised mass index (SMI, using Strine et al., 2015 as comparison population) in forested and rural habitat using flat and weak priors with 95 % credible intervals. All measurements are larger for females, except for TL and SMI which is indicated by *.

| Measurement | Forest, flat | Forest, weak | Rural, flat | Rural, weak |
|-------------|---------------------|---------------------|---------------------|---------------------|
| SVL | 42.4 [-20–104] | 41.9 [-18.1–104] | 37.8 [-32.2–107] | 37.4 [-30.8–105] |
| TL | 22.4 [4.6–40.2] * | 22.3 [4.55–40.1] * | 26.9 [5.11–48.7] * | 26.8 [5.2–48.3] * |
| TBL | 19.9 [-50.3–91.2] | 19.8 [-50.1–88.6] | 11 [-76.7–100] | 10.8 [-76.4–10.8] |
| Mass | 6.61 [-6.7–19.1] | 6.56 [-6.43–19.4] | 3.57 [-6.99–14.4] | 3.6 [-7.1–14.3] |
| HL | 2.65 [-0.664–5.96] | 2.62 [-0.587–5.88] | 2.11 [-0.377–4.62] | 2.09 [-0.434–4.51] |
| HW | 1.34 [-0.659–3.34] | 1.33 [-0.655–3.3] | 13.5 [-0.804–2.94] | 1.06 [-0.769–2.88] |
| Girth | | | | |
| 25 % | 0.728 [-0.522–1.94] | - | 0.309 [-0.485–1.12] | - |
| 50 % | 1.01 [-0.18–2.19] | - | 0.19 [-0.854–1.23] | - |
| 75 % | 0.452 [-1.27–2.07] | - | 0.262 [-1.35–1.91] | - |
| SMI | 3.65 [-3.52–10.9] * | 3.63 [-3.53–10.7] * | 5.19 [-6.62–17.1] * | 5.19 [-6.36–16.8] * |

Table 8. Probabilities of observing differences between male and non- gravid female *T. macrops* morphological measurements and standardised mass index (SMI, using Strine et al., 2015 as comparison population) in forested and rural habitat using flat and weak priors. All measurements are larger for females, except for TL and SMI which is indicated by *.

| Measurement | Difference | Forest, flat | Forest, weak | Rural, flat | Rural, weak |
|-------------|------------|--------------|--------------|-------------|-------------|
| SVL | > 30 mm | 67.1 | 66.7 | 60.3 | 60.2 |
| TL | > 5 mm | 97.3 * | 97.2 * | 97.6 * | 97.6 * |
| TBL | > 30 mm | 37.6 | 37.2 | 31.1 | 30.7 |
| Mass | > 15 g | 8.4 | 8.3 | 1.9 | 2 |
| HL | > 3 mm | 40.7 | 39.6 | 21.3 | 20.7 |
| HW | > 2 mm | 23.9 | 23.4 | 13.5 | 12.9 |
| Girth | | | | | |
| 25 % | > 0.1 mm | 86 | - | 71.1 | - |
| 50 % | > 0.1 mm | 94.1 | - | 57.5 | - |
| 75 % | > 0.1 mm | 68.1 | - | 58.7 | - |
| SMI | > 0 | 86.3 * | 86.4 * | 83.4 * | 83.7 * |

Table 9. Summary of mean differences within sexes of *T. macrops* morphological measurements and standardised mass index (SMI, using Strine et al., 2015 as comparison population) in forested and rural habitat using flat priors with 95 % credible intervals. All measurements are larger for rural vipers, except for measurements which are indicated by *.

| Measurement | Male, flat | Male, weak | Female, flat | Female, weak |
|-------------|-------------------------|-----------------------|----------------------|---------------------|
| SVL | 1.33 [-30.3, 32.5] | 1.29, [-30.4–32.5] | 19 [-21.7–59.8] | 18.7 [-22.1–59] |
| TL | 1.6 [-11.9–15.3]* | 1.65, [-12–15.2] * | 0.744 [-10.2–11.7] * | 0.739 [-10.2–11.7]* |
| TBL | 0.376 [-40.3- 41] * | 0.345, [-40.2–40.8]* | 18.2 [-31.4–68.7] | 17.8 [-32.3–67.4] |
| Mass | 3.07 [-2.05–8.24] | 3.07, [-2.08–8.23] | 9.02 [-7.9–26.6] | 8.79 [-8.51–25.7] |
| HL | 0.113 [-1.2–1.4] | 0.111, [-1.19–1.4] | 1.26 [-0.745–3.33] | 1.26 [-0.791–3.26] |
| HW | 0.15 [-1.07–1.33] * | 0.153, [-1.02–1.36] * | 0.956 [-0.632–2.55] | 0.95 [-0.638–2.53] |
| Girth | | | | |
| 25 % | 0.0337 [-0.758–0.836] * | - | 0.355 [-0.73–1.46] | - |
| 50 % | 0.298 [-0.471–1.08] | - | 0.573 [-1.16–2.29] | - |
| 75 % | 0.201 [-0.79–1.19] | - | 0.941 [-0.734–2.61] | - |
| SMI | 4.48 [-0.543–9.43] | 4.45, [-0.53–9.45] | 1.52 [-5.71–8.71] | 1.46[-5.69–8.67] |

Table 10. Probabilities of observing differences within sexes of *T. macrops* morphological measurements and standardised mass index (SMI, using Strine et al., 2015 as comparison population) in forested and rural habitat using flat priors. All measurements are larger for rural vipers, except for measurements which are indicated by *.

| Measurement | Difference | Male, flat | Male, weak | Female, flat | Female, weak |
|-------------|------------|------------|------------|--------------|--------------|
| SVL | > 0 mm | 53.4 | 53.3 | 82.7 | 82.3 |
| TL | > 0 mm | 59.4 * | 59.7 * | 55.5 * | 55.5 * |
| TBL | > 0 mm | 50.7 * | 50.6 * | 77.1 | 76.6 |
| Mass | > 0 g | 88.5 | 88.4 | 85.6 | 85.2 |
| HL | > 0 mm | 57 | 56.8 | 89.3 | 89.1 |
| HW | > 0 mm | 60.2 * | 60.4 * | 88.7 | 88.5 |
| Girth | | | | | |
| 25 % | > 0 mm | 53.5 | - | 74.5 | - |
| 50 % | > 0 mm | 78.2 | - | 75.2 | - |
| 75 % | > 0 mm | 66.1 | - | 87.2 | - |
| SMI | > 0 | 96.2 | 96.1 | 66.6 | 66.3 |

Table 11. Summary of *T. macrops* (TRMA) capture location (forest or rural), sex, gravidity, and month of capture included in analyses.

| ID | Location | Sex | Gravid | Month |
|---------|----------|--------|--------|-----------|
| TRMA001 | Forest | Female | Yes | February |
| TRMA002 | Forest | Male | NA | October |
| TRMA003 | Forest | Female | Yes | June |
| TRMA004 | Forest | Female | Yes | January |
| TRMA005 | Forest | Male | NA | October |
| TRMA006 | Forest | Male | NA | December |
| TRMA007 | Forest | Male | NA | July |
| TRMA008 | Forest | Male | NA | April |
| TRMA009 | Forest | Female | Yes | September |
| TRMA010 | Forest | Female | No | June |
| TRMA011 | Forest | Female | Yes | January |
| TRMA012 | Forest | Female | NA | November |
| TRMA013 | Forest | Female | No | March |
| TRMA014 | Forest | Female | Yes | November |
| TRMA015 | Rural | Male | NA | October |
| TRMA016 | Forest | Female | No | March |
| TRMA017 | Forest | Female | Yes | November |
| TRMA018 | Rural | Male | NA | April |
| TRMA019 | Forest | Male | NA | July |
| TRMA020 | Forest | Male | NA | July |
| TRMA021 | Forest | Female | No | July |
| TRMA022 | Rural | Female | No | August |
| TRMA023 | Forest | Male | NA | October |
| TRMA024 | Forest | Female | No | October |
| TRMA025 | Rural | Male | NA | November |
| TRMA026 | Forest | Female | NA | June |
| TRMA027 | Rural | Female | No | November |
| TRMA028 | Rural | Female | No | November |
| TRMA029 | Forest | Female | NA | November |
| TRMA030 | Rural | Male | NA | November |
| TRMA031 | Forest | Female | No | November |
| TRMA032 | Rural | Male | NA | November |
| TRMA033 | Rural | Female | Yes | November |
| TRMA034 | Rural | Female | Yes | November |
| TRMA035 | Rural | Male | NA | December |
| TRMA036 | Rural | Male | NA | December |
| TRMA037 | Rural | Female | Yes | September |
| TRMA038 | Rural | Female | No | January |
| TRMA039 | Rural | Male | NA | February |
| TRMA040 | Rural | Male | NA | September |
| TRMA041 | Rural | Male | NA | February |
| TRMA042 | Rural | Male | NA | February |
| TRMA043 | Rural | Male | NA | February |
| TRMA044 | Rural | Male | NA | February |
| TRMA045 | Rural | Female | Yes | February |

| | | | | |
|---------|--------|--------|-----|-----------|
| TRMA046 | Rural | Male | NA | February |
| TRMA047 | Rural | Male | NA | February |
| TRMA048 | Rural | Female | No | March |
| TRMA049 | Rural | Male | NA | March |
| TRMA050 | Rural | Female | No | March |
| TRMA051 | Rural | Male | NA | March |
| TRMA052 | Rural | Male | NA | June |
| TRMA053 | Forest | Female | NA | June |
| TRMA054 | Forest | Female | Yes | August |
| TRMA055 | Forest | Female | Yes | August |
| TRMA056 | Rural | Female | Yes | August |
| TRMA057 | Forest | Female | Yes | August |
| TRMA058 | Forest | Male | NA | September |
| TRMA059 | Forest | Male | NA | September |
| TRMA060 | Forest | Male | NA | October |
| TRMA061 | Forest | Male | NA | October |
| TRMA062 | Rural | Female | NA | October |
| TRMA063 | Forest | Female | Yes | October |
| TRMA064 | Rural | Female | Yes | November |
| TRMA065 | Rural | Female | NA | January |
| TRMA066 | Forest | Female | No | November |
| TRMA067 | Forest | Female | NA | November |
| TRMA068 | Forest | Male | NA | November |
| TRMA069 | Forest | Female | NA | November |
| TRMA070 | Forest | Female | Yes | November |
| TRMA071 | Forest | Female | Yes | December |
| TRMA072 | Forest | Male | NA | December |
| TRMA073 | Forest | Female | Yes | June |
