

Ecography

**ECOG-03593**

Tarr, S., Meiri, S., Hicks, J. J. and Algar, A. C. 2018. A biogeographic reversal in sexual size dimorphism along a continental temperature gradient. – *Ecography* doi: 10.1111/ecog.03593

**Supplementary material**

**SUPPLEMENTARY MATERIAL**

**A biogeographic reversal in sexual size dimorphism along a continental temperature gradient**

**Appendix 1: Supplementary Tables and Figures**

Table A1. Placement of species missing from phylogeny.

| Species   | Comment   | Reference  |
|---|---|--|
| <i>Abronia cuetzpali</i>  | Most closely related to <i>oaxaca</i> and <i>mixteca</i> , most similar to <i>mixteca</i> according to Campbell et al. so add as sister to <i>mixteca</i>                         | Campbell, J.A., et al. 2016. A new species of <i>Abronia</i> (Squamata: Anguidae) from the Sierra Madre del Sur of Oaxaca, Mexico. <i>Journal of Herpetology</i> 50: 149-156.  |
| <i>Anolis alocomyos</i> & <i>Anolis leditzigorum</i>                          | Both formerly part of <i>tropidolepis</i> , make a random clade with <i>tropidolepis</i>  | Köhler, G., et al. 2014. Two new species of the <i>Norops pachypus</i> complex (Squamata, Dactyloidae) from Costa Rica. <i>Mesoamerican Herpetology</i> 1: 254–280.  |
| <i>Anolis brooksi</i> & <i>Anolis kathydayae</i>                              | Part of a clade with <i>microtus</i> and <i>ginaelisiae</i> so make a random clade with these & <i>brooksi</i> & <i>kathydayae</i> , based on Poe & Ryan.                         | Poe S, Ryan M.J. 2017. Description of two new species similar to <i>Anolis insignis</i> (Squamata: Iguanidae) and resurrection of <i>Anolis (Diaphoranolis) brooksi</i> . <i>Amphibian &amp; Reptile Conservation</i> 11: 1–16.  |
| <i>Anolis marsupialis</i>   | Part of a clade with <i>aquaticus</i> and <i>woodi</i> so make a random clade with these  | Köhler, J.J., et al. 2015. <i>Anolis marsupialis</i> Taylor 1956, a valid species from southern Pacific Costa Rica (Reptilia, Squamata, Dactyloidae). <i>Zootaxa</i> 3915111–122   |
| <i>Anolis mccraniei</i> , <i>Anolis spilorhipis</i> , & <i>Anolis wilsoni</i> | Formerly part of <i>tropidonotus</i> , so split <i>tropidonotus</i> into a random clade   | Köhler, G., et al. 2016. Taxonomic revision of the <i>Norops tropidonotus</i> complex (Squamata, Dactyloidae), with the resurrection of <i>N. spilorhipis</i> (Alvarez del Toro and Smith, 1956) and the description of two new species. <i>Mesoamerican Herpetology</i> 3: 8–41 |
| <i>Anolis ustus</i>   | Was synonym of <i>sericeus</i> but elevated to species so placed as sister to <i>sericeus</i>   | Lara-Tufiño J.D., et al. 2016. Resurrection of <i>Anolis ustus</i> Cope, 1864 from synonymy with <i>Anolis sericeus</i> Hallowell, 1856 (Squamata, Dactyloidae). <i>ZooKeys</i> 619: 147–162.  |
| <i>Aspidoscelis costatus</i>  | synonym of <i>sackii</i> so add as sister to <i>sackii</i>  | Reptile Database   |
| <i>Mesaspis cuchumatanus</i>  | most similar to <i>moreletii</i> , so add as sister thereof   | Solano-Zavaleta, I., et al. 2016. A new species of <i>Mesaspis</i> (Squamata: Anguidae) from the high Cuchumatanes of Guatemala. <i>Journal of Herpetology</i> 50: 327-336   |
| <i>Phrynosoma bauri</i>   | Allied to <i>brevirostris</i> , add to clade with <i>hernandesi</i> , <i>brevirostris</i> and <i>diminutum</i>  | Montanucci, R.R. 2015. A taxonomic revision of the <i>Phrynosoma douglasii</i> species complex (Squamata: Phrynosomatidae). <i>Zootaxa</i> 4015: 1–177   |
| <i>Phrynosoma brevirostris</i>  | Distinct from <i>hernandesi</i> , add to clade with <i>hernandesi</i> , <i>brevirostris</i> and <i>diminutum</i>  | Montanucci, R.R. 2015. A taxonomic revision of the <i>Phrynosoma douglasii</i> species complex (Squamata: Phrynosomatidae). <i>Zootaxa</i> 4015: 1–177   |
| <i>Phrynosoma diminutum</i>   | allied to <i>brevirostris</i> , add to clade with <i>hernandesi</i> , <i>brevirostris</i> and <i>diminutum</i>  | Montanucci, R.R. 2015. A taxonomic revision of the <i>Phrynosoma douglasii</i> species complex (Squamata: Phrynosomatidae). <i>Zootaxa</i> 4015: 1–177   |
| <i>Sceloporus brownorum</i>   | in <i>scalaris</i> group, but topology of Tonini et al. tree doesn't match Grummer et al. tree, so add next to <i>scalaris</i> rather than restructure the whole clade's topology | Grummer, J.A., et al. 2014. A new species of bunchgrass lizard (Squamata: Phrynosomatidae) from the southern sky islands of the Sierra Madre Occidental, Mexico. <i>Zootaxa</i> 3790: 439–450  |
| <i>Sceloporus gadsdeni</i>  | Split from <i>cyanostictus</i> , so add as a sister to this species   | Díaz-Cárdenas, B., et al. 2017. Species delimitation of the blue-spotted spiny lizard within a multilocus, multispecies  |

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|--------------------------|--|---|
|                          |  | coalescent framework, results in the recognition of a new <i>Sceloporus</i> species. Molecular Phylogenetics and Evolution 111: 185-195   |
| <i>Sceloporus oregon</i> | Paraphyletic with <i>minor</i> and <i>ornatus</i> which are sisters in tree so randomly add to this clade.   | Díaz-Cárdenas, B., et al. 2017. Species delimitation of the blue-spotted spiny lizard within a multilocus, multispecies coalescent framework, results in the recognition of a new <i>Sceloporus</i> species. Molecular Phylogenetics and Evolution 111: 185-195 |
| <i>Uma cowlesi</i>       | According to Gottscho et al., <i>rufopunctata</i> is a hybrid between <i>cowlesi</i> and <i>notata</i> . <i>rufopunctata</i> is in the Tonini et al tree though, so add as sister to <i>rufopunctata</i> | Gottscho, A.D., et al. 2016. Lineage diversification of fringe-toed lizards (Phrynosomatidae: <i>Uma notata</i> complex) in the Colorado Desert: delimiting species in the presence of gene flow. Molecular Phylogenetics and Evolution 106: 103-117            |

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Table A2. Parameters for Brownian motion simulations for randomisation tests.

| Variable                 | Mean at root | $\sigma^2$ |
|--------------------------|--------------|------------|
| Sexual size dimorphism   | -0.008       | 0.0017     |
| Log Clutch mass          | 0.274        | 0.005      |
| Male snout-vent length   | 111.8        | 92.4       |
| Female snout-vent length | 109.2        | 72.4       |

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Table A3. Univariate regression results relating sexual size dimorphism, clutch mass, male and female size, and climate in grid cells of different grain sizes. Significance was determined based on the distribution of test statistics expected under Brownian motion evolution of the response variable. All P-values are two-tailed. Sexual size dimorphism is positive when females are larger. SVL is snout-vent length. Mean annual precipitation was log-transformed mean annual precipitation. P-values less than 0.05 are in bold.

| Predictor Variable        | Response Variables     |             |                |                     |             |                    |            |      |                |             |             |                |
|---------------------------|------------------------|-------------|----------------|---------------------|-------------|--------------------|------------|------|----------------|-------------|-------------|----------------|
|                           | Sexual Size Dimorphism |             |                | Log Clutch Mass     |             |                    | Female SVL |      |                | Male SVL    |             |                |
|                           | slope                  | P           | r <sup>2</sup> | slope               | P           | r <sup>2</sup>     | slope      | P    | r <sup>2</sup> | slope       | P           | r <sup>2</sup> |
| <b>100km x 100km</b>      |                        |             |                |                     |             |                    |            |      |                |             |             |                |
| Mean annual temperature   | <b>-0.007</b>          | <b>0.03</b> | 0.51           | 0.005               | 0.83        | 0.01               | 1.17       | 0.14 | 0.32           | <b>2.61</b> | <b>0.01</b> | 0.61           |
| Temperature seasonality   | 1×10 <sup>-4</sup>     | 0.22        | 0.29           | -1×10 <sup>-5</sup> | 0.98        | 1×10 <sup>-4</sup> | -0.02      | 0.19 | 0.29           | -0.05       | 0.08        | 0.42           |
| Annual Precipitation      | -0.06                  | 0.58        | 0.10           | <b>-0.59</b>        | <b>0.04</b> | 0.46               | 7.33       | 0.80 | 0.03           | 34.1        | 0.43        | 0.17           |
| Precipitation seasonality | -8×10 <sup>-4</sup>    | 0.36        | 0.15           | 0.003               | 0.59        | 0.12               | 0.10       | 0.73 | 0.04           | 0.11        | 0.83        | 0.02           |
| Log clutch mass           | 0.02                   | 0.90        | 0.01           | -                   | -           | -                  | -          | -    | -              | -           | -           | -              |
| <b>50km x 50km</b>        |                        |             |                |                     |             |                    |            |      |                |             |             |                |
| Mean annual temperature   | <b>-0.007</b>          | <b>0.03</b> | 0.59           | 0.004               | 0.84        | 0.01               | 1.28       | 0.11 | 0.33           | <b>2.6</b>  | <b>0.01</b> | 0.59           |
| Temperature seasonality   | 1×10 <sup>-4</sup>     | 0.18        | 0.31           | 4×10 <sup>-5</sup>  | 0.96        | 0.01               | -0.03      | 0.19 | 0.27           | -0.05       | 0.05        | 0.42           |
| Annual precipitation      | -0.06                  | 0.55        | 0.11           | -0.55               | 0.05        | 0.42               | 9.9        | 0.74 | 0.05           | 29.5        | 0.46        | 0.16           |
| Precipitation seasonality | -8×10 <sup>-4</sup>    | 0.38        | 0.16           | 0.003               | 0.60        | 0.12               | 0.11       | 0.71 | 0.05           | 0.16        | 0.74        | 0.03           |
| Log clutch mass           | -0.02                  | 0.88        | 0.01           | -                   | -           | -                  | -          | -    | -              | -           | -           | -              |
| <b>200km x 200km</b>      |                        |             |                |                     |             |                    |            |      |                |             |             |                |
| Mean annual temperature   | -0.007                 | 0.05        | 0.51           | 0.007               | 0.76        | 0.04               | 0.98       | 0.25 | 0.26           | <b>2.5</b>  | <b>0.03</b> | 0.56           |
| Temperature seasonality   | 1×10 <sup>-4</sup>     | 0.32        | 0.28           | -1×10 <sup>-5</sup> | 0.90        | 0.02               | -0.02      | 0.33 | 0.25           | -0.05       | 0.11        | 0.44           |
| Annual precipitation      | -0.05                  | 0.64        | 0.07           | <b>-0.6</b>         | <b>0.04</b> | 0.43               | 3.9        | 0.90 | 0.01           | 34.1        | 0.40        | 0.17           |
| Precipitation seasonality | -8×10 <sup>-4</sup>    | 0.48        | 0.15           | 0.003               | 0.65        | 0.11               | 0.09       | 0.81 | 0.03           | 0.02        | 0.98        | 0.00           |
| Log clutch mass           | -0.03                  | 0.87        | 0.02           | -                   | -           | -                  | -          | -    | -              | -           | -           | -              |

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Table A4. Multiple regression results relating sexual size dimorphism, clutch mass, and male and female size to mean annual temperature and annual precipitation in 100km x 100km cells. Significance was determined based on the distribution of test statistics expected under Brownian motion evolution of the response variable. All P-values are two-tailed. Sexual size dimorphism is positive when females are larger. SVL is snout-vent length. The interaction is between mean annual temperature and annual precipitation. P-values less than 0.05 are in bold.

| Predictor Variable        | Response Variables     |             |                |                 |              |                |            |      |                |            |             |                |
|---------------------------|------------------------|-------------|----------------|-----------------|--------------|----------------|------------|------|----------------|------------|-------------|----------------|
|                           | Sexual Size Dimorphism |             |                | Log Clutch Mass |              |                | Female SVL |      |                | Male SVL   |             |                |
|                           | slope                  | P           | R <sup>2</sup> | slope           | P            | R <sup>2</sup> | slope      | P    | r <sup>2</sup> | slope      | P           | R <sup>2</sup> |
| <b>100km x 100km</b>      |                        |             |                |                 |              |                |            |      |                |            |             |                |
| Model with interaction    |                        |             |                |                 |              |                |            |      |                |            |             |                |
| Mean annual temperature   | -0.03                  | 0.29        |                | -0.009          | 0.95         |                | 0.005      | 0.99 |                | 6.2        | 0.53        |                |
| Annual precipitation      | -0.18                  | 0.64        | 0.58           | -0.72           | 0.61         | 0.52           | -4.3       | 0.96 | 0.32           | 36.4       | 0.69        | 0.66           |
| Interaction               | 0.009                  | 0.51        |                | 0.007           | 0.91         |                | 0.41       | 0.93 |                | -1.4       | 0.75        |                |
| Model without interaction |                        |             |                |                 |              |                |            |      |                |            |             |                |
| Mean annual temperature   | <b>-0.006</b>          | <b>0.05</b> | 0.52           | 0.009           | 0.64         | 0.51           | 2.4        | 0.01 | 0.32           | 1.3        | 0.10        | 0.65           |
| Annual precipitation      | -0.013                 | 0.92        |                | -0.62           | 0.03         |                | 17.3       | 0.64 |                | 5.75       | 0.88        |                |
| <b>50km x 50km</b>        |                        |             |                |                 |              |                |            |      |                |            |             |                |
| Model with interaction    |                        |             |                |                 |              |                |            |      |                |            |             |                |
| Mean annual temperature   | -0.03                  | 0.29        |                | -0.004          | 0.98         |                | -0.17      | 0.98 |                | 4.5        | 0.60        |                |
| Annual precipitation      | -0.16                  | 0.63        | 0.57           | -0.65           | 0.62         | 0.47           | -2.8       | 0.97 | 0.35           | 27.5       | 0.73        | 0.65           |
| Interaction               | 0.008                  | 0.51        |                | 0.004           | 0.93         |                | 0.51       | 0.89 |                | -0.76      | 0.84        |                |
| Model without interaction |                        |             |                |                 |              |                |            |      |                |            |             |                |
| Mean annual temperature   | -0.007                 | 0.05        | 0.52           | 0.009           | 0.31         | 0.47           | 1.2        | 0.15 | 0.35           | <b>2.4</b> | <b>0.01</b> | 0.64           |
| Annual precipitation      | -0.02                  | 0.89        |                | <b>-0.58</b>    | <b>0.001</b> |                | 5.3        | 0.88 |                | 17.2       | 0.60        |                |
| <b>200km x 200km</b>      |                        |             |                |                 |              |                |            |      |                |            |             |                |
| Model with interaction    |                        |             |                |                 |              |                |            |      |                |            |             |                |
| Mean annual temperature   | -0.03                  | 0.35        |                | -0.006          | 0.98         |                | 0.97       | 0.94 |                | 9.0        | 0.43        |                |
| Annual precipitation      | -0.18                  | 0.67        | 0.59           | -0.72           | 0.65         | 0.51           | -0.61      | 0.99 | 0.26           | 52.5       | 0.64        | 0.64           |
| Interaction               | 0.009                  | 0.57        |                | 0.006           | 0.94         |                | 0.006      | 1.0  |                | -2.5       | 0.63        |                |
| Model without interaction |                        |             |                |                 |              |                |            |      |                |            |             |                |
| Mean annual temperature   | -0.007                 | 0.10        | 0.52           | 0.01            | 0.64         | 0.51           | 0.98       | 0.96 | 0.26           | 2.3        | 0.07        | 0.60           |
| Annual precipitation      | 0.01                   | 0.95        |                | <b>-0.63</b>    | <b>0.04</b>  |                | -0.51      | 0.99 |                | 16.6       | 0.74        |                |

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Table A5. Multiple regression results relating the magnitude of sexual dimorphism, regardless of direction, to species richness, elevation range, and their interaction in cells of different sizes. Significance was determined based on the distribution of test statistics expected under Brownian motion evolution of the response variable. All P-values are two-tailed.

| Cell size     | Response Variables |      |                    |      |                     |      | R <sup>2</sup> |
|---------------|--------------------|------|--------------------|------|---------------------|------|----------------|
|               | Species Richness   |      | Elevation Range    |      | Interaction         |      |                |
|               | slope              | P    | slope              | P    | slope               | P    |                |
| 100km x 100km | $9 \times 10^{-4}$ | 0.70 | $7 \times 10^{-6}$ | 0.75 | $-3 \times 10^{-7}$ | 0.63 | 0.05           |
| 200km x 200km | $6 \times 10^{-4}$ | 0.77 | $9 \times 10^{-6}$ | 0.70 | $-2 \times 10^{-8}$ | 0.66 | 0.06           |
| 50km x 50km   | $1 \times 10^{-3}$ | 0.59 | $5 \times 10^{-6}$ | 0.83 | $-4 \times 10^{-7}$ | 0.61 | 0.09           |









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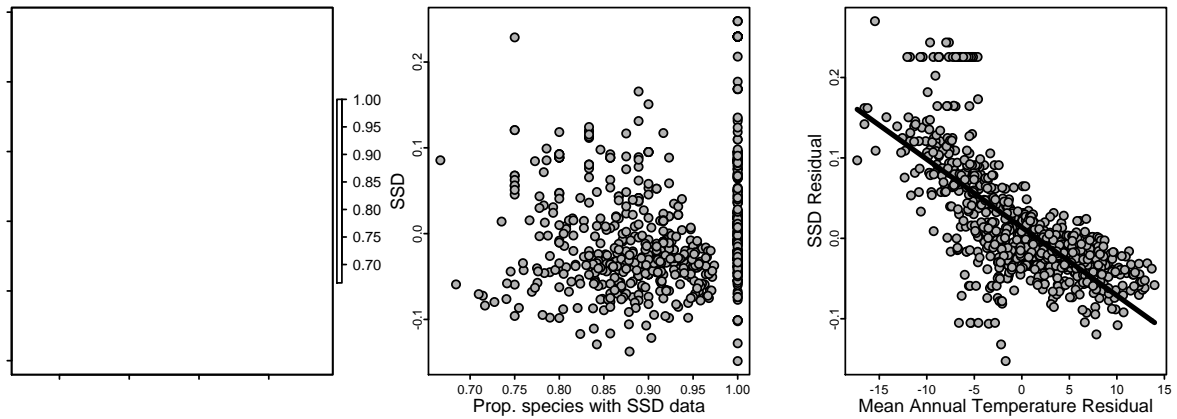


Figure A3. Variation in the proportion of species with sexual size dimorphism (SSD) data in each grid cell and its effect on the mean SSD~mean annual temperature relationship. The left panel shows the proportion of species in each grid cell with SSD data, the middle panel shows the relationship between mean SSD and the proportion of species with SSD data in each grid cell, and the right panel shows the partial regression plot of mean SSD on mean annual temperature, after accounting for the completeness of SSD data within grid cells. Specifically, in the right panel, the y-axis is the residuals from a regression of mean SSD on the proportion of species in a grid cell with SSD data and the x-axis is the residuals from a regression of mean annual temperature on the proportion of species in a grid cell with SSD data.

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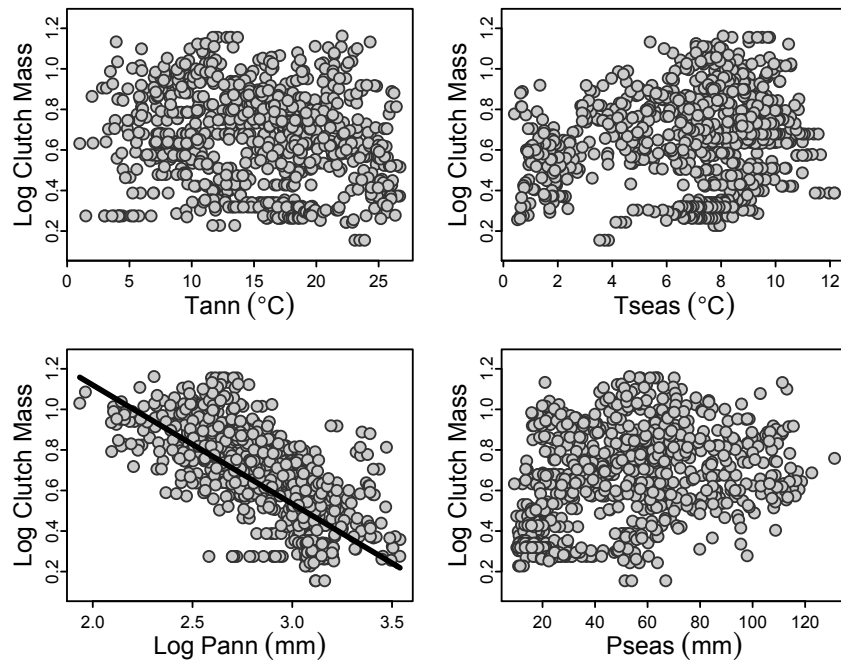


Figure A4. Relationships between mean log clutch mass and climate for lizards in 100km x 100km grid cells across North and Central America. Only the relationship with mean annual precipitation was significant (black line) relative to the expectation under Brownian motion evolution. Tann is mean annual temperature, Tseas is temperature seasonality, Pann is mean annual precipitation and Pseas is precipitation seasonality.

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Table A7. List of species with range map, sexual size dimorphism (SSD) and clutch size data used in for analyses.

| Species                        | range.map | SSD | clutch.size |
|--------------------------------|-----------|-----|-------------|
| <i>Abronia anzuetoi</i>        | 1         | 1   | 0           |
| <i>Abronia aurita</i>          | 1         | 1   | 1           |
| <i>Abronia boqerti</i>         | 1         | 1   | 0           |
| <i>Abronia campbelli</i>       | 1         | 0   | 0           |
| <i>Abronia chiszari</i>        | 1         | 1   | 0           |
| <i>Abronia cuetzpali</i>       | 1         | 1   | 0           |
| <i>Abronia deppii</i>          | 1         | 1   | 1           |
| <i>Abronia fimbriata</i>       | 1         | 1   | 0           |
| <i>Abronia frosti</i>          | 1         | 1   | 0           |
| <i>Abronia fuscolabialis</i>   | 1         | 0   | 0           |
| <i>Abronia qaiophantasma</i>   | 1         | 1   | 0           |
| <i>Abronia graminea</i>        | 1         | 1   | 0           |
| <i>Abronia leurolepis</i>      | 1         | 0   | 0           |
| <i>Abronia lythrochila</i>     | 1         | 0   | 0           |
| <i>Abronia martindelcampoi</i> | 1         | 0   | 0           |
| <i>Abronia matudai</i>         | 1         | 1   | 0           |
| <i>Abronia meledona</i>        | 1         | 1   | 1           |
| <i>Abronia mitchelli</i>       | 1         | 0   | 0           |
| <i>Abronia mixteca</i>         | 1         | 0   | 0           |
| <i>Abronia montecristoi</i>    | 1         | 0   | 0           |
| <i>Abronia oaxaca</i>          | 1         | 0   | 0           |
| <i>Abronia ochoteranai</i>     | 1         | 1   | 1           |
| <i>Abronia ornelasi</i>        | 1         | 1   | 0           |
| <i>Abronia ramirezi</i>        | 1         | 0   | 0           |
| <i>Abronia reidi</i>           | 1         | 0   | 0           |
| <i>Abronia salvadorensis</i>   | 1         | 0   | 0           |
| <i>Abronia smithi</i>          | 1         | 1   | 0           |
| <i>Abronia taeniata</i>        | 1         | 0   | 0           |
| <i>Abronia vasconcelosii</i>   | 1         | 1   | 0           |
| <i>Ameiva ameiva</i>           | 1         | 1   | 0           |
| <i>Anadia ocellata</i>         | 1         | 1   | 0           |
| <i>Anadia vittata</i>          | 1         | 0   | 0           |
| <i>Anelytropsis papillosus</i> | 1         | 0   | 0           |
| <i>Anniella alexanderae</i>    | 1         | 0   | 0           |
| <i>Anniella campi</i>          | 1         | 0   | 0           |
| <i>Anniella geronimensis</i>   | 1         | 1   | 1           |
| <i>Anniella grinnelli</i>      | 1         | 0   | 0           |
| <i>Anniella pulchra</i>        | 1         | 0   | 1           |
| <i>Anniella stebbinsi</i>      | 1         | 0   | 0           |
| <i>Anolis allisoni</i>         | 1         | 1   | 0           |
| <i>Anolis alocomyos</i>        | 1         | 1   | 0           |
| <i>Anolis altae</i>            | 1         | 1   | 0           |
| <i>Anolis alvarezdeltoroi</i>  | 1         | 1   | 0           |
| <i>Anolis amplisquamosus</i>   | 1         | 1   | 0           |
| <i>Anolis anchicayae</i>       | 1         | 0   | 0           |
| <i>Anolis anisolepis</i>       | 1         | 1   | 0           |
| <i>Anolis apletophallus</i>    | 1         | 1   | 0           |
| <i>Anolis aquaticus</i>        | 1         | 1   | 0           |
| <i>Anolis auratus</i>          | 1         | 1   | 0           |
| <i>Anolis barkeri</i>          | 1         | 1   | 1           |
| <i>Anolis beckeri</i>          | 1         | 1   | 0           |
| <i>Anolis benedikti</i>        | 1         | 1   | 0           |
| <i>Anolis binotatus</i>        | 1         | 0   | 0           |
| <i>Anolis biporcatus</i>       | 1         | 1   | 0           |
| <i>Anolis boulengerianus</i>   | 1         | 1   | 0           |
| <i>Anolis brooksi</i>          | 1         | 1   | 0           |
| <i>Anolis campbelli</i>        | 1         | 1   | 0           |

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|                               |   |   |   |
|-------------------------------|---|---|---|
| <i>Anolis capito</i>          | 1 | 1 | 0 |
| <i>Anolis carlliebi</i>       | 1 | 1 | 0 |
| <i>Anolis carolinensis</i>    | 1 | 1 | 1 |
| <i>Anolis carpenteri</i>      | 1 | 1 | 1 |
| <i>Anolis casildae</i>        | 1 | 1 | 0 |
| <i>Anolis charlesmversi</i>   | 1 | 1 | 0 |
| <i>Anolis chloris</i>         | 1 | 1 | 0 |
| <i>Anolis cobanensis</i>      | 1 | 1 | 0 |
| <i>Anolis compressicauda</i>  | 1 | 1 | 0 |
| <i>Anolis conspersus</i>      | 1 | 1 | 0 |
| <i>Anolis crassulus</i>       | 1 | 1 | 0 |
| <i>Anolis cristifer</i>       | 1 | 0 | 0 |
| <i>Anolis cryptolimifrons</i> | 1 | 1 | 0 |
| <i>Anolis cupreus</i>         | 1 | 1 | 0 |
| <i>Anolis cuprinus</i>        | 1 | 1 | 0 |
| <i>Anolis cusuco</i>          | 1 | 1 | 0 |
| <i>Anolis cymbops</i>         | 1 | 1 | 0 |
| <i>Anolis damulus</i>         | 1 | 1 | 0 |
| <i>Anolis datzorum</i>        | 1 | 1 | 0 |
| <i>Anolis dollfusianus</i>    | 1 | 1 | 0 |
| <i>Anolis duellmani</i>       | 1 | 1 | 0 |
| <i>Anolis dunni</i>           | 1 | 1 | 0 |
| <i>Anolis elcopeensis</i>     | 1 | 1 | 0 |
| <i>Anolis fortunensis</i>     | 1 | 1 | 0 |
| <i>Anolis frenatus</i>        | 1 | 1 | 0 |
| <i>Anolis funaosus</i>        | 1 | 0 | 0 |
| <i>Anolis fuscoauratus</i>    | 1 | 1 | 0 |
| <i>Anolis qadovii</i>         | 1 | 1 | 0 |
| <i>Anolis gaigei</i>          | 1 | 1 | 0 |
| <i>Anolis ainaelisae</i>      | 1 | 1 | 0 |
| <i>Anolis granuliceps</i>     | 1 | 1 | 0 |
| <i>Anolis qruuo</i>           | 1 | 1 | 0 |
| <i>Anolis haguei</i>          | 1 | 0 | 0 |
| <i>Anolis hobartsmithi</i>    | 1 | 1 | 0 |
| <i>Anolis humilis</i>         | 1 | 1 | 0 |
| <i>Anolis ibanezi</i>         | 1 | 1 | 0 |
| <i>Anolis immaculogularis</i> | 1 | 1 | 0 |
| <i>Anolis insianis</i>        | 1 | 1 | 0 |
| <i>Anolis johnmeyeri</i>      | 1 | 1 | 0 |
| <i>Anolis kathydayae</i>      | 1 | 1 | 0 |
| <i>Anolis kemptoni</i>        | 1 | 1 | 0 |
| <i>Anolis kreutzii</i>        | 1 | 1 | 0 |
| <i>Anolis kunayalae</i>       | 1 | 1 | 0 |
| <i>Anolis laeviventris</i>    | 1 | 1 | 0 |
| <i>Anolis latifrons</i>       | 1 | 1 | 0 |
| <i>Anolis leditziaorum</i>    | 1 | 1 | 0 |
| <i>Anolis lemurinus</i>       | 1 | 1 | 0 |
| <i>Anolis limifrons</i>       | 1 | 1 | 0 |
| <i>Anolis liogaster</i>       | 1 | 1 | 0 |
| <i>Anolis lionotus</i>        | 1 | 1 | 1 |
| <i>Anolis loveridgei</i>      | 1 | 1 | 0 |
| <i>Anolis macrinii</i>        | 1 | 1 | 0 |
| <i>Anolis macrophallus</i>    | 1 | 1 | 0 |
| <i>Anolis maculiventris</i>   | 1 | 1 | 0 |
| <i>Anolis magnaphallus</i>    | 1 | 1 | 0 |
| <i>Anolis maia</i>            | 1 | 0 | 0 |
| <i>Anolis marsupialis</i>     | 1 | 1 | 0 |
| <i>Anolis matudai</i>         | 1 | 1 | 0 |
| <i>Anolis mccraniei</i>       | 1 | 1 | 0 |
| <i>Anolis meapholidotus</i>   | 1 | 1 | 0 |
| <i>Anolis microlepidotus</i>  | 1 | 1 | 0 |

SUPPLEMENTARY MATERIAL

A biogeographic reversal in sexual size dimorphism along a continental temperature gradient

|                                |   |   |   |
|--------------------------------|---|---|---|
| <i>Anolis microlepis</i>       | 1 | 0 | 0 |
| <i>Anolis microtus</i>         | 1 | 1 | 0 |
| <i>Anolis milleri</i>          | 1 | 1 | 0 |
| <i>Anolis monteverde</i>       | 1 | 1 | 0 |
| <i>Anolis morazani</i>         | 1 | 1 | 0 |
| <i>Anolis muralla</i>          | 1 | 1 | 0 |
| <i>Anolis naufragus</i>        | 1 | 1 | 0 |
| <i>Anolis nebuloides</i>       | 1 | 1 | 0 |
| <i>Anolis nebulosus</i>        | 1 | 1 | 1 |
| <i>Anolis nietoi</i>           | 1 | 1 | 0 |
| <i>Anolis ocelloscapularis</i> | 1 | 1 | 0 |
| <i>Anolis omiltemanus</i>      | 1 | 1 | 0 |
| <i>Anolis osa</i>              | 1 | 1 | 0 |
| <i>Anolis oxylophus</i>        | 1 | 1 | 0 |
| <i>Anolis pachypus</i>         | 1 | 1 | 0 |
| <i>Anolis parvicirculatus</i>  | 1 | 1 | 0 |
| <i>Anolis pentaprion</i>       | 1 | 1 | 0 |
| <i>Anolis petersii</i>         | 1 | 1 | 0 |
| <i>Anolis peucephilus</i>      | 1 | 1 | 0 |
| <i>Anolis pijolense</i>        | 1 | 1 | 0 |
| <i>Anolis poecilopus</i>       | 1 | 1 | 0 |
| <i>Anolis polylepis</i>        | 1 | 1 | 0 |
| <i>Anolis pseudokemptoni</i>   | 1 | 1 | 0 |
| <i>Anolis pseudopachypus</i>   | 1 | 1 | 0 |
| <i>Anolis purpurescens</i>     | 1 | 0 | 0 |
| <i>Anolis purpurularis</i>     | 1 | 1 | 0 |
| <i>Anolis purpuronectes</i>    | 1 | 0 | 0 |
| <i>Anolis pygmaeus</i>         | 1 | 0 | 0 |
| <i>Anolis quaaqulus</i>        | 1 | 1 | 0 |
| <i>Anolis quercorum</i>        | 1 | 1 | 0 |
| <i>Anolis rodriguezii</i>      | 1 | 1 | 0 |
| <i>Anolis rubiginosus</i>      | 1 | 1 | 0 |
| <i>Anolis rubribarbaris</i>    | 1 | 1 | 0 |
| <i>Anolis sacamecatensis</i>   | 1 | 1 | 0 |
| <i>Anolis saqrei</i>           | 1 | 1 | 0 |
| <i>Anolis salvini</i>          | 1 | 1 | 0 |
| <i>Anolis savaqei</i>          | 1 | 0 | 0 |
| <i>Anolis schiedii</i>         | 1 | 1 | 0 |
| <i>Anolis sericeus</i>         | 1 | 1 | 0 |
| <i>Anolis serranoi</i>         | 1 | 1 | 0 |
| <i>Anolis sminthus</i>         | 1 | 1 | 0 |
| <i>Anolis spilorhipis</i>      | 1 | 1 | 0 |
| <i>Anolis stevepoei</i>        | 1 | 1 | 0 |
| <i>Anolis subocularis</i>      | 1 | 1 | 0 |
| <i>Anolis taylori</i>          | 1 | 1 | 0 |
| <i>Anolis tenorioensis</i>     | 1 | 1 | 0 |
| <i>Anolis triumphalis</i>      | 1 | 0 | 0 |
| <i>Anolis tropidogaster</i>    | 1 | 1 | 0 |
| <i>Anolis tropidolepis</i>     | 1 | 1 | 0 |
| <i>Anolis tropidonotus</i>     | 1 | 1 | 0 |
| <i>Anolis uniformis</i>        | 1 | 1 | 0 |
| <i>Anolis unilobatus</i>       | 1 | 1 | 0 |
| <i>Anolis ustus</i>            | 1 | 1 | 0 |
| <i>Anolis vittigerus</i>       | 1 | 1 | 0 |
| <i>Anolis wampuensis</i>       | 1 | 1 | 0 |
| <i>Anolis wellbornae</i>       | 1 | 1 | 0 |
| <i>Anolis wermuthi</i>         | 1 | 1 | 0 |
| <i>Anolis wilsoni</i>          | 1 | 1 | 0 |
| <i>Anolis woodi</i>            | 1 | 1 | 0 |
| <i>Anolis yoroensis</i>        | 1 | 1 | 0 |
| <i>Anolis zapotecorum</i>      | 1 | 1 | 0 |

**SUPPLEMENTARY MATERIAL**

**A biogeographic reversal in sexual size dimorphism along a continental temperature gradient**

|                                    |   |   |   |
|------------------------------------|---|---|---|
| <i>Anolis zeus</i>                 | 1 | 1 | 0 |
| <i>Aristelliger aeoraensis</i>     | 1 | 1 | 0 |
| <i>Aspidoscelis angusticeps</i>    | 1 | 1 | 0 |
| <i>Aspidoscelis burti</i>          | 1 | 1 | 1 |
| <i>Aspidoscelis calidipes</i>      | 1 | 1 | 0 |
| <i>Aspidoscelis communis</i>       | 1 | 1 | 0 |
| <i>Aspidoscelis costatus</i>       | 1 | 1 | 0 |
| <i>Aspidoscelis cozumela</i>       | 1 | 0 | 0 |
| <i>Aspidoscelis deppii</i>         | 1 | 1 | 0 |
| <i>Aspidoscelis exsanaus</i>       | 1 | 0 | 0 |
| <i>Aspidoscelis flagellicaudus</i> | 1 | 0 | 0 |
| <i>Aspidoscelis gularis</i>        | 1 | 1 | 1 |
| <i>Aspidoscelis guttatus</i>       | 1 | 1 | 0 |
| <i>Aspidoscelis hyperviridis</i>   | 1 | 1 | 0 |
| <i>Aspidoscelis inornatus</i>      | 1 | 1 | 0 |
| <i>Aspidoscelis labialis</i>       | 1 | 1 | 0 |
| <i>Aspidoscelis laredoensis</i>    | 1 | 0 | 0 |
| <i>Aspidoscelis lineatissimus</i>  | 1 | 1 | 0 |
| <i>Aspidoscelis marmoratus</i>     | 1 | 1 | 0 |
| <i>Aspidoscelis maslini</i>        | 1 | 0 | 0 |
| <i>Aspidoscelis maximus</i>        | 1 | 1 | 0 |
| <i>Aspidoscelis mexicanus</i>      | 1 | 1 | 0 |
| <i>Aspidoscelis motaguae</i>       | 1 | 0 | 0 |
| <i>Aspidoscelis neomexicanus</i>   | 1 | 0 | 0 |
| <i>Aspidoscelis neotesselatus</i>  | 1 | 0 | 0 |
| <i>Aspidoscelis opatae</i>         | 1 | 0 | 0 |
| <i>Aspidoscelis pai</i>            | 1 | 1 | 0 |
| <i>Aspidoscelis parvisocius</i>    | 1 | 1 | 0 |
| <i>Aspidoscelis rodecki</i>        | 1 | 0 | 0 |
| <i>Aspidoscelis sackii</i>         | 1 | 1 | 0 |
| <i>Aspidoscelis scalaris</i>       | 1 | 1 | 0 |
| <i>Aspidoscelis sexlineatus</i>    | 1 | 1 | 0 |
| <i>Aspidoscelis sonora</i>         | 1 | 0 | 0 |
| <i>Aspidoscelis stictoarammus</i>  | 1 | 0 | 0 |
| <i>Aspidoscelis tessellatus</i>    | 1 | 0 | 0 |
| <i>Aspidoscelis tigris</i>         | 1 | 1 | 1 |
| <i>Aspidoscelis uniparens</i>      | 1 | 0 | 0 |
| <i>Aspidoscelis velox</i>          | 1 | 0 | 0 |
| <i>Aspidoscelis xanthonotus</i>    | 1 | 0 | 0 |
| <i>Bachia blairi</i>               | 1 | 0 | 0 |
| <i>Bachia pallidiceps</i>          | 1 | 0 | 0 |
| <i>Barisia ciliaris</i>            | 1 | 0 | 0 |
| <i>Barisia herrerae</i>            | 1 | 1 | 1 |
| <i>Barisia imbricata</i>           | 1 | 1 | 1 |
| <i>Barisia jonesi</i>              | 1 | 0 | 0 |
| <i>Barisia levicollis</i>          | 1 | 0 | 0 |
| <i>Barisia planifrons</i>          | 1 | 0 | 0 |
| <i>Barisia rudicollis</i>          | 1 | 1 | 1 |
| <i>Basiliscus basiliscus</i>       | 1 | 1 | 0 |
| <i>Basiliscus galeritus</i>        | 1 | 0 | 0 |
| <i>Basiliscus plumifrons</i>       | 1 | 1 | 1 |
| <i>Basiliscus vittatus</i>         | 1 | 1 | 0 |
| <i>Cachryx alfredschmidti</i>      | 1 | 1 | 0 |
| <i>Cachryx defensor</i>            | 1 | 0 | 0 |
| <i>Callisaurus draconoides</i>     | 1 | 1 | 1 |
| <i>Celestus adercus</i>            | 1 | 0 | 0 |
| <i>Celestus bivittatus</i>         | 1 | 1 | 1 |
| <i>Celestus cvanochloris</i>       | 1 | 0 | 0 |
| <i>Celestus enneagrammus</i>       | 1 | 0 | 0 |
| <i>Celestus hylaius</i>            | 1 | 0 | 0 |
| <i>Celestus ingridae</i>           | 1 | 1 | 0 |



SUPPLEMENTARY MATERIAL

A biogeographic reversal in sexual size dimorphism along a continental temperature gradient

|                                     |   |   |   |
|-------------------------------------|---|---|---|
| <i>Celestus laf</i>                 | 1 | 0 | 0 |
| <i>Celestus leqnotus</i>            | 1 | 1 | 0 |
| <i>Celestus montanus</i>            | 1 | 0 | 0 |
| <i>Celestus orobius</i>             | 1 | 0 | 0 |
| <i>Celestus rozellae</i>            | 1 | 0 | 0 |
| <i>Celestus scansorius</i>          | 1 | 0 | 0 |
| <i>Cnemidophorus duellmani</i>      | 1 | 1 | 0 |
| <i>Cnemidophorus lemniscatus</i>    | 1 | 1 | 0 |
| <i>Cnemidophorus ruatanus</i>       | 1 | 1 | 0 |
| <i>Coleonyx brevis</i>              | 1 | 1 | 1 |
| <i>Coleonyx elegans</i>             | 1 | 1 | 1 |
| <i>Coleonyx fasciatus</i>           | 1 | 0 | 0 |
| <i>Coleonyx mitratus</i>            | 1 | 1 | 1 |
| <i>Coleonyx reticulatus</i>         | 1 | 1 | 1 |
| <i>Coleonyx switaki</i>             | 1 | 0 | 0 |
| <i>Coleonyx variegatus</i>          | 1 | 1 | 1 |
| <i>Coloptychon rhombifer</i>        | 1 | 0 | 0 |
| <i>Copeoglossum nigropunctatum</i>  | 1 | 1 | 0 |
| <i>Cophosaurus texanus</i>          | 1 | 1 | 1 |
| <i>Corytophanes cristatus</i>       | 1 | 1 | 0 |
| <i>Corytophanes hernandesii</i>     | 1 | 0 | 0 |
| <i>Corytophanes percarinatus</i>    | 1 | 0 | 0 |
| <i>Crotaphytus antiquus</i>         | 1 | 1 | 0 |
| <i>Crotaphytus bicinctores</i>      | 1 | 1 | 1 |
| <i>Crotaphytus collaris</i>         | 1 | 1 | 1 |
| <i>Crotaphytus dickersonae</i>      | 1 | 1 | 0 |
| <i>Crotaphytus arimeri</i>          | 1 | 1 | 1 |
| <i>Crotaphytus insularis</i>        | 1 | 1 | 0 |
| <i>Crotaphytus nebrius</i>          | 1 | 1 | 0 |
| <i>Crotaphytus reticulatus</i>      | 1 | 1 | 1 |
| <i>Crotaphytus vestigiium</i>       | 1 | 1 | 0 |
| <i>Ctenosaura acanthura</i>         | 1 | 0 | 0 |
| <i>Ctenosaura clarki</i>            | 1 | 1 | 0 |
| <i>Ctenosaura flavidorsalis</i>     | 1 | 1 | 0 |
| <i>Ctenosaura hemilopha</i>         | 1 | 1 | 0 |
| <i>Ctenosaura macrolopha</i>        | 1 | 1 | 0 |
| <i>Ctenosaura melanosterna</i>      | 1 | 1 | 1 |
| <i>Ctenosaura oaxacana</i>          | 1 | 1 | 0 |
| <i>Ctenosaura palearis</i>          | 1 | 1 | 0 |
| <i>Ctenosaura pectinata</i>         | 1 | 1 | 0 |
| <i>Ctenosaura quinquecarinata</i>   | 1 | 1 | 0 |
| <i>Ctenosaura similis</i>           | 1 | 1 | 1 |
| <i>Diploglossus atitlanensis</i>    | 1 | 0 | 0 |
| <i>Diploglossus bilobatus</i>       | 1 | 1 | 1 |
| <i>Diploglossus monotropis</i>      | 1 | 1 | 0 |
| <i>Diploglossus montisilvestris</i> | 1 | 0 | 0 |
| <i>Dipsosaurus dorsalis</i>         | 1 | 1 | 1 |
| <i>Echinosaura horrida</i>          | 1 | 1 | 0 |
| <i>Echinosaura palmeri</i>          | 1 | 1 | 0 |
| <i>Echinosaura panamensis</i>       | 1 | 1 | 0 |
| <i>Elgaria cedrosensis</i>          | 1 | 0 | 0 |
| <i>Elgaria coerulea</i>             | 1 | 1 | 1 |
| <i>Elgaria kinjii</i>               | 1 | 0 | 0 |
| <i>Elgaria multicarinata</i>        | 1 | 1 | 1 |
| <i>Elgaria panamintina</i>          | 1 | 1 | 0 |
| <i>Elgaria paucicarinata</i>        | 1 | 1 | 0 |
| <i>Elgaria velazquezii</i>          | 1 | 0 | 0 |
| <i>Enyalioides heterolepis</i>      | 1 | 1 | 0 |
| <i>Gambelia copeii</i>              | 1 | 1 | 0 |
| <i>Gambelia sila</i>                | 1 | 1 | 1 |
| <i>Gambelia wislizenii</i>          | 1 | 1 | 1 |

**SUPPLEMENTARY MATERIAL**

**A biogeographic reversal in sexual size dimorphism along a continental temperature gradient**

|  |   |   |   |
|--|---|---|---|
| <i>Gerrhonotus farri</i>               | 1 | 0 | 0 |
| <i>Gerrhonotus infernalis</i>          | 1 | 1 | 1 |
| <i>Gerrhonotus lazcanoi</i>            | 1 | 0 | 0 |
| <i>Gerrhonotus liocephalus</i>         | 1 | 1 | 0 |
| <i>Gerrhonotus lugoi</i>               | 1 | 0 | 0 |
| <i>Gerrhonotus ophiurus</i>            | 1 | 1 | 0 |
| <i>Gerrhonotus parvus</i>              | 1 | 0 | 0 |
| <i>Gonatodes alboquararis</i>          | 1 | 1 | 0 |
| <i>Gymnophthalmus speciosus</i>        | 1 | 1 | 0 |
| <i>Heloderma horridum</i>              | 1 | 1 | 1 |
| <i>Heloderma suspectum</i>             | 1 | 1 | 1 |
| <i>Holbrookia approximans</i>          | 1 | 1 | 0 |
| <i>Holbrookia elegans</i>              | 1 | 1 | 0 |
| <i>Holbrookia lacerata</i>             | 1 | 0 | 0 |
| <i>Holbrookia maculata</i>             | 1 | 1 | 1 |
| <i>Holbrookia propinqua</i>            | 1 | 1 | 1 |
| <i>Holcosus anomalus</i>               | 1 | 1 | 0 |
| <i>Holcosus chaitzami</i>              | 1 | 1 | 0 |
| <i>Holcosus festivus</i>               | 1 | 1 | 0 |
| <i>Holcosus leptophrys</i>             | 1 | 1 | 0 |
| <i>Holcosus quadrilineatus</i>         | 1 | 1 | 1 |
| <i>Holcosus undulatus</i>              | 1 | 1 | 1 |
| <i>Iguana iguana</i>                   | 1 | 1 | 0 |
| <i>Laemanctus lonqipes</i>             | 1 | 1 | 1 |
| <i>Laemanctus serratus</i>             | 1 | 0 | 0 |
| <i>Lepidoblepharis emberawoundule</i>  | 1 | 0 | 0 |
| <i>Lepidoblepharis rufigularis</i>     | 1 | 0 | 0 |
| <i>Lepidoblepharis sanctaemartae</i>   | 1 | 0 | 0 |
| <i>Lepidoblepharis victormartinezi</i> | 1 | 0 | 0 |
| <i>Lepidoblepharis xanthostigma</i>    | 1 | 1 | 0 |
| <i>Lepidophyma chicoasensis</i>        | 1 | 0 | 0 |
| <i>Lepidophyma cuicateca</i>           | 1 | 0 | 0 |
| <i>Lepidophyma dontomasii</i>          | 1 | 1 | 0 |
| <i>Lepidophyma flavimaculatum</i>      | 1 | 1 | 1 |
| <i>Lepidophyma gaigeae</i>             | 1 | 1 | 0 |
| <i>Lepidophyma lineri</i>              | 1 | 0 | 0 |
| <i>Lepidophyma lipetzi</i>             | 1 | 0 | 0 |
| <i>Lepidophyma lowei</i>               | 1 | 0 | 0 |
| <i>Lepidophyma mayae</i>               | 1 | 0 | 0 |
| <i>Lepidophyma micropholis</i>         | 1 | 1 | 0 |
| <i>Lepidophyma occulor</i>             | 1 | 1 | 0 |
| <i>Lepidophyma paiaapanensis</i>       | 1 | 0 | 0 |
| <i>Lepidophyma radula</i>              | 1 | 0 | 0 |
| <i>Lepidophyma reticulatum</i>         | 1 | 0 | 0 |
| <i>Lepidophyma smithii</i>             | 1 | 0 | 0 |
| <i>Lepidophyma sylvaticum</i>          | 1 | 1 | 0 |
| <i>Lepidophyma tarascae</i>            | 1 | 1 | 0 |
| <i>Lepidophyma tuxtlae</i>             | 1 | 1 | 0 |
| <i>Lepidophyma zongolica</i>           | 1 | 0 | 0 |
| <i>Loxopholis ruaiceps</i>             | 1 | 1 | 0 |
| <i>Loxopholis southi</i>               | 1 | 1 | 0 |
| <i>Marisora alliacea</i>               | 1 | 1 | 0 |
| <i>Marisora brachypoda</i>             | 1 | 1 | 0 |
| <i>Marisora unimarainata</i>           | 1 | 1 | 0 |
| <i>Mesaspis antauges</i>               | 1 | 1 | 0 |
| <i>Mesaspis cuchumatanus</i>           | 1 | 1 | 0 |
| <i>Mesaspis gadovii</i>                | 1 | 1 | 1 |
| <i>Mesaspis iuarezi</i>                | 1 | 1 | 1 |
| <i>Mesaspis monticola</i>              | 1 | 1 | 1 |
| <i>Mesaspis moreletii</i>              | 1 | 1 | 1 |
| <i>Mesaspis viridiflava</i>            | 1 | 0 | 0 |

**SUPPLEMENTARY MATERIAL**

**A biogeographic reversal in sexual size dimorphism along a continental temperature gradient**

|   |   |   |   |
|---|---|---|---|
| <i>Mesoscincus altamirani</i>           | 1 | 1 | 0 |
| <i>Mesoscincus manauae</i>              | 1 | 0 | 0 |
| <i>Mesoscincus schwartzei</i>           | 1 | 1 | 0 |
| <i>Morunasaurus groi</i>                | 1 | 1 | 0 |
| <i>Ophisaurus attenuatus</i>            | 1 | 1 | 1 |
| <i>Ophisaurus ceroni</i>                | 1 | 0 | 0 |
| <i>Ophisaurus compressus</i>            | 1 | 1 | 1 |
| <i>Ophisaurus incomptus</i>             | 1 | 0 | 0 |
| <i>Ophisaurus mimicus</i>               | 1 | 1 | 0 |
| <i>Ophisaurus ventralis</i>             | 1 | 0 | 0 |
| <i>Petrosaurus mearnsi</i>              | 1 | 0 | 0 |
| <i>Petrosaurus repens</i>               | 1 | 0 | 0 |
| <i>Petrosaurus thalassinus</i>          | 1 | 1 | 0 |
| <i>Pholidobolus vertebralis</i>         | 1 | 1 | 0 |
| <i>Phrynosoma asio</i>                  | 1 | 0 | 0 |
| <i>Phrynosoma bauri</i>                 | 1 | 1 | 0 |
| <i>Phrynosoma blainvillii</i>           | 1 | 1 | 0 |
| <i>Phrynosoma braconnieri</i>           | 1 | 1 | 0 |
| <i>Phrynosoma brevirostris</i>          | 1 | 1 | 0 |
| <i>Phrynosoma cerroense</i>             | 1 | 1 | 0 |
| <i>Phrynosoma cornutum</i>              | 1 | 1 | 1 |
| <i>Phrynosoma coronatum</i>             | 1 | 1 | 1 |
| <i>Phrynosoma diminutum</i>             | 1 | 1 | 0 |
| <i>Phrynosoma ditmarsii</i>             | 1 | 1 | 1 |
| <i>Phrynosoma douglasii</i>             | 1 | 0 | 1 |
| <i>Phrynosoma qoodei</i>                | 1 | 0 | 0 |
| <i>Phrynosoma hernandesi</i>            | 1 | 1 | 1 |
| <i>Phrynosoma mcallii</i>               | 1 | 1 | 1 |
| <i>Phrynosoma modestum</i>              | 1 | 1 | 1 |
| <i>Phrynosoma orbiculare</i>            | 1 | 1 | 0 |
| <i>Phrynosoma ornatissimum</i>          | 1 | 0 | 0 |
| <i>Phrynosoma platyrhinus</i>           | 1 | 1 | 1 |
| <i>Phrynosoma sherbrookei</i>           | 1 | 1 | 0 |
| <i>Phrynosoma solare</i>                | 1 | 1 | 1 |
| <i>Phrynosoma taurus</i>                | 1 | 1 | 0 |
| <i>Phyllodactylus bordai</i>            | 1 | 1 | 0 |
| <i>Phyllodactylus davisii</i>           | 1 | 0 | 0 |
| <i>Phyllodactylus delcampoi</i>         | 1 | 0 | 0 |
| <i>Phyllodactylus duellmani</i>         | 1 | 0 | 0 |
| <i>Phyllodactylus homolepidurus</i>     | 1 | 0 | 0 |
| <i>Phyllodactylus lanei</i>             | 1 | 1 | 1 |
| <i>Phyllodactylus muralis</i>           | 1 | 1 | 0 |
| <i>Phyllodactylus nocticolus</i>        | 1 | 1 | 0 |
| <i>Phyllodactylus papenfussi</i>        | 1 | 0 | 0 |
| <i>Phyllodactylus paucituberculatus</i> | 1 | 0 | 0 |
| <i>Phyllodactylus tuberculatus</i>      | 1 | 1 | 1 |
| <i>Phyllodactylus unctus</i>            | 1 | 1 | 0 |
| <i>Phyllodactylus xanti</i>             | 1 | 1 | 0 |
| <i>Plestiodon anthracinus</i>           | 1 | 1 | 1 |
| <i>Plestiodon bilineatus</i>            | 1 | 0 | 0 |
| <i>Plestiodon brevirostris</i>          | 1 | 1 | 0 |
| <i>Plestiodon callicephalus</i>         | 1 | 1 | 0 |
| <i>Plestiodon colimensis</i>            | 1 | 0 | 0 |
| <i>Plestiodon copei</i>                 | 1 | 1 | 1 |
| <i>Plestiodon dicei</i>                 | 1 | 0 | 0 |
| <i>Plestiodon dugesii</i>               | 1 | 1 | 0 |
| <i>Plestiodon equeqius</i>              | 1 | 1 | 1 |
| <i>Plestiodon fasciatus</i>             | 1 | 1 | 1 |
| <i>Plestiodon gilberti</i>              | 1 | 1 | 1 |
| <i>Plestiodon indubitus</i>             | 1 | 1 | 0 |
| <i>Plestiodon inexpectatus</i>          | 1 | 1 | 1 |

SUPPLEMENTARY MATERIAL

A biogeographic reversal in sexual size dimorphism along a continental temperature gradient

|                                    |   |   |   |
|------------------------------------|---|---|---|
| <i>Plestiodon lagunensis</i>       | 1 | 1 | 0 |
| <i>Plestiodon laticeps</i>         | 1 | 1 | 1 |
| <i>Plestiodon lotus</i>            | 1 | 0 | 0 |
| <i>Plestiodon lynxe</i>            | 1 | 1 | 1 |
| <i>Plestiodon multilineatus</i>    | 1 | 0 | 0 |
| <i>Plestiodon multiviraatus</i>    | 1 | 1 | 1 |
| <i>Plestiodon nietoi</i>           | 1 | 0 | 0 |
| <i>Plestiodon obsoletus</i>        | 1 | 1 | 1 |
| <i>Plestiodon ochoterenae</i>      | 1 | 1 | 0 |
| <i>Plestiodon parviauriculatus</i> | 1 | 1 | 1 |
| <i>Plestiodon parvulus</i>         | 1 | 0 | 0 |
| <i>Plestiodon reynoldsi</i>        | 1 | 1 | 0 |
| <i>Plestiodon septentrionalis</i>  | 1 | 1 | 1 |
| <i>Plestiodon skiltonianus</i>     | 1 | 1 | 1 |
| <i>Plestiodon sumichrasti</i>      | 1 | 1 | 1 |
| <i>Plestiodon tetraqrammus</i>     | 1 | 1 | 1 |
| <i>Polychrus gutturosus</i>        | 1 | 1 | 0 |
| <i>Polychrus marmoratus</i>        | 1 | 1 | 0 |
| <i>Potamites apodemus</i>          | 1 | 1 | 0 |
| <i>Ptychoqlossus festae</i>        | 1 | 1 | 0 |
| <i>Ptychoglossus myersi</i>        | 1 | 1 | 0 |
| <i>Ptychoqlossus plicatus</i>      | 1 | 1 | 0 |
| <i>Sauromalus ater</i>             | 1 | 1 | 1 |
| <i>Sauromalus hispidus</i>         | 1 | 1 | 0 |
| <i>Sauromalus varius</i>           | 1 | 1 | 0 |
| <i>Sceloporus acanthinus</i>       | 1 | 0 | 0 |
| <i>Sceloporus adleri</i>           | 1 | 1 | 0 |
| <i>Sceloporus aeneus</i>           | 1 | 1 | 1 |
| <i>Sceloporus albiventris</i>      | 1 | 0 | 0 |
| <i>Sceloporus anahuacus</i>        | 1 | 0 | 0 |
| <i>Sceloporus arenicolus</i>       | 1 | 1 | 0 |
| <i>Sceloporus asper</i>            | 1 | 0 | 0 |
| <i>Sceloporus aurantius</i>        | 1 | 0 | 0 |
| <i>Sceloporus aureolus</i>         | 1 | 1 | 0 |
| <i>Sceloporus bicanthalis</i>      | 1 | 1 | 1 |
| <i>Sceloporus bimaculosus</i>      | 1 | 1 | 0 |
| <i>Sceloporus brownorum</i>        | 1 | 1 | 0 |
| <i>Sceloporus bulleri</i>          | 1 | 1 | 0 |
| <i>Sceloporus caeruleus</i>        | 1 | 0 | 0 |
| <i>Sceloporus carinatus</i>        | 1 | 0 | 0 |
| <i>Sceloporus cautus</i>           | 1 | 1 | 0 |
| <i>Sceloporus chanevi</i>          | 1 | 0 | 0 |
| <i>Sceloporus chrysostictus</i>    | 1 | 1 | 1 |
| <i>Sceloporus clarkii</i>          | 1 | 1 | 1 |
| <i>Sceloporus consobrinus</i>      | 1 | 1 | 0 |
| <i>Sceloporus couchii</i>          | 1 | 1 | 0 |
| <i>Sceloporus cowlesi</i>          | 1 | 1 | 0 |
| <i>Sceloporus cozumelae</i>        | 1 | 1 | 1 |
| <i>Sceloporus cryptus</i>          | 1 | 1 | 0 |
| <i>Sceloporus cupreus</i>          | 1 | 0 | 0 |
| <i>Sceloporus cyanogenys</i>       | 1 | 1 | 0 |
| <i>Sceloporus cyanostictus</i>     | 1 | 1 | 0 |
| <i>Sceloporus druckercolini</i>    | 1 | 0 | 0 |
| <i>Sceloporus duaesii</i>          | 1 | 1 | 1 |
| <i>Sceloporus edbelli</i>          | 1 | 1 | 0 |
| <i>Sceloporus edwardtaylori</i>    | 1 | 0 | 0 |
| <i>Sceloporus exsul</i>            | 1 | 0 | 0 |
| <i>Sceloporus formosus</i>         | 1 | 1 | 1 |
| <i>Sceloporus gadoviae</i>         | 1 | 1 | 1 |
| <i>Sceloporus qadsdeni</i>         | 1 | 1 | 0 |
| <i>Sceloporus goldmani</i>         | 1 | 1 | 0 |

SUPPLEMENTARY MATERIAL

A biogeographic reversal in sexual size dimorphism along a continental temperature gradient

|                                 |   |   |   |
|---------------------------------|---|---|---|
| <i>Sceloporus graciosus</i>     | 1 | 1 | 1 |
| <i>Sceloporus grammicus</i>     | 1 | 1 | 1 |
| <i>Sceloporus grandaevus</i>    | 1 | 1 | 0 |
| <i>Sceloporus halli</i>         | 1 | 0 | 0 |
| <i>Sceloporus heterolepis</i>   | 1 | 1 | 0 |
| <i>Sceloporus horridus</i>      | 1 | 1 | 1 |
| <i>Sceloporus hunsakeri</i>     | 1 | 1 | 0 |
| <i>Sceloporus insignis</i>      | 1 | 1 | 0 |
| <i>Sceloporus internasalis</i>  | 1 | 0 | 0 |
| <i>Sceloporus jalapae</i>       | 1 | 1 | 1 |
| <i>Sceloporus jarrovii</i>      | 1 | 1 | 0 |
| <i>Sceloporus lemosespinali</i> | 1 | 1 | 0 |
| <i>Sceloporus licki</i>         | 1 | 0 | 0 |
| <i>Sceloporus lunae</i>         | 1 | 0 | 0 |
| <i>Sceloporus lundelli</i>      | 1 | 1 | 0 |
| <i>Sceloporus macdougalli</i>   | 1 | 1 | 0 |
| <i>Sceloporus maculosus</i>     | 1 | 0 | 0 |
| <i>Sceloporus magister</i>      | 1 | 1 | 1 |
| <i>Sceloporus malachiticus</i>  | 1 | 1 | 1 |
| <i>Sceloporus megalepidurus</i> | 1 | 1 | 0 |
| <i>Sceloporus melanorhinus</i>  | 1 | 1 | 0 |
| <i>Sceloporus merriami</i>      | 1 | 1 | 1 |
| <i>Sceloporus minor</i>         | 1 | 1 | 0 |
| <i>Sceloporus mucronatus</i>    | 1 | 1 | 1 |
| <i>Sceloporus nelsoni</i>       | 1 | 1 | 0 |
| <i>Sceloporus oberon</i>        | 1 | 1 | 0 |
| <i>Sceloporus occidentalis</i>  | 1 | 1 | 1 |
| <i>Sceloporus ochoterenae</i>   | 1 | 1 | 1 |
| <i>Sceloporus olivaceus</i>     | 1 | 1 | 1 |
| <i>Sceloporus omiltemanus</i>   | 1 | 1 | 0 |
| <i>Sceloporus orcutti</i>       | 1 | 1 | 1 |
| <i>Sceloporus ornatus</i>       | 1 | 1 | 0 |
| <i>Sceloporus palaciosi</i>     | 1 | 1 | 0 |
| <i>Sceloporus parvus</i>        | 1 | 1 | 0 |
| <i>Sceloporus poinsettii</i>    | 1 | 1 | 1 |
| <i>Sceloporus pyrocephalus</i>  | 1 | 1 | 1 |
| <i>Sceloporus salvini</i>       | 1 | 0 | 0 |
| <i>Sceloporus samcolemanni</i>  | 1 | 1 | 0 |
| <i>Sceloporus scalaris</i>      | 1 | 1 | 1 |
| <i>Sceloporus serrifer</i>      | 1 | 0 | 0 |
| <i>Sceloporus shannonorum</i>   | 1 | 1 | 0 |
| <i>Sceloporus siniferus</i>     | 1 | 1 | 1 |
| <i>Sceloporus slevini</i>       | 1 | 1 | 0 |
| <i>Sceloporus smaragdinus</i>   | 1 | 1 | 0 |
| <i>Sceloporus smithi</i>        | 1 | 0 | 0 |
| <i>Sceloporus spinosus</i>      | 1 | 1 | 1 |
| <i>Sceloporus squamosus</i>     | 1 | 1 | 0 |
| <i>Sceloporus stejnegeri</i>    | 1 | 1 | 0 |
| <i>Sceloporus subpictus</i>     | 1 | 1 | 0 |
| <i>Sceloporus suqillatus</i>    | 1 | 1 | 0 |
| <i>Sceloporus taeniocnemis</i>  | 1 | 1 | 0 |
| <i>Sceloporus tanneri</i>       | 1 | 0 | 0 |
| <i>Sceloporus teapensis</i>     | 1 | 1 | 0 |
| <i>Sceloporus torquatus</i>     | 1 | 1 | 1 |
| <i>Sceloporus tristichus</i>    | 1 | 1 | 0 |
| <i>Sceloporus undulatus</i>     | 1 | 1 | 1 |
| <i>Sceloporus unicanthalis</i>  | 1 | 0 | 0 |
| <i>Sceloporus uniformis</i>     | 1 | 1 | 0 |
| <i>Sceloporus utiformis</i>     | 1 | 1 | 1 |
| <i>Sceloporus variabilis</i>    | 1 | 1 | 1 |
| <i>Sceloporus virgatus</i>      | 1 | 1 | 1 |

**SUPPLEMENTARY MATERIAL**

**A biogeographic reversal in sexual size dimorphism along a continental temperature gradient**

|                                       |   |   |   |
|---------------------------------------|---|---|---|
| <i>Sceloporus woodi</i>               | 1 | 1 | 1 |
| <i>Sceloporus zosteromus</i>          | 1 | 1 | 1 |
| <i>Scincella assatus</i>              | 1 | 0 | 0 |
| <i>Scincella caudaequinae</i>         | 1 | 1 | 0 |
| <i>Scincella cherriei</i>             | 1 | 1 | 0 |
| <i>Scincella forbesora</i>            | 1 | 1 | 0 |
| <i>Scincella gemmingeri</i>           | 1 | 1 | 0 |
| <i>Scincella incerta</i>              | 1 | 0 | 0 |
| <i>Scincella kikaapoa</i>             | 1 | 0 | 0 |
| <i>Scincella lateralis</i>            | 1 | 1 | 1 |
| <i>Scincella silvicola</i>            | 1 | 1 | 1 |
| <i>Sphaerodactylus argus</i>          | 1 | 1 | 0 |
| <i>Sphaerodactylus continentalis</i>  | 1 | 0 | 0 |
| <i>Sphaerodactylus dunni</i>          | 1 | 0 | 0 |
| <i>Sphaerodactylus glaucus</i>        | 1 | 1 | 1 |
| <i>Sphaerodactylus graptolaemus</i>   | 1 | 1 | 0 |
| <i>Sphaerodactylus homolepis</i>      | 1 | 1 | 1 |
| <i>Sphaerodactylus lineolatus</i>     | 1 | 1 | 0 |
| <i>Sphaerodactylus millepunctatus</i> | 1 | 1 | 1 |
| <i>Sphaerodactylus notatus</i>        | 1 | 1 | 0 |
| <i>Sphenomorphus rarus</i>            | 1 | 0 | 0 |
| <i>Thecadactylus rapicauda</i>        | 1 | 1 | 0 |
| <i>Tretioscincus bifasciatus</i>      | 1 | 0 | 0 |
| <i>Tupinambis tequixin</i>            | 1 | 1 | 0 |
| <i>Uma cowlesi</i>                    | 1 | 1 | 0 |
| <i>Uma exsul</i>                      | 1 | 1 | 1 |
| <i>Uma inornata</i>                   | 1 | 1 | 0 |
| <i>Uma notata</i>                     | 1 | 1 | 1 |
| <i>Uma paraphygas</i>                 | 1 | 1 | 1 |
| <i>Uma scoparia</i>                   | 1 | 1 | 1 |
| <i>Urosaurus bicarinatus</i>          | 1 | 1 | 1 |
| <i>Urosaurus qadovi</i>               | 1 | 1 | 0 |
| <i>Urosaurus graciosus</i>            | 1 | 1 | 1 |
| <i>Urosaurus lahtelai</i>             | 1 | 0 | 0 |
| <i>Urosaurus nigricaudus</i>          | 1 | 1 | 0 |
| <i>Urosaurus ornatus</i>              | 1 | 1 | 1 |
| <i>Uta stansburiana</i>               | 1 | 1 | 1 |
| <i>Xantusia arizonae</i>              | 1 | 1 | 1 |
| <i>Xantusia bezyi</i>                 | 1 | 1 | 0 |
| <i>Xantusia bolsonae</i>              | 1 | 1 | 1 |
| <i>Xantusia extorris</i>              | 1 | 1 | 1 |
| <i>Xantusia ailberti</i>              | 1 | 0 | 0 |
| <i>Xantusia gracilis</i>              | 1 | 0 | 0 |
| <i>Xantusia henshawi</i>              | 1 | 1 | 1 |
| <i>Xantusia jaycolei</i>              | 1 | 0 | 0 |
| <i>Xantusia sanchezi</i>              | 1 | 1 | 1 |
| <i>Xantusia sherbrookei</i>           | 1 | 0 | 0 |
| <i>Xantusia sierrae</i>               | 1 | 1 | 0 |
| <i>Xantusia vigilis</i>               | 1 | 1 | 1 |
| <i>Xantusia wiaqinsi</i>              | 1 | 1 | 0 |
| <i>Xenosaurus agrenon</i>             | 1 | 0 | 0 |
| <i>Xenosaurus arboreus</i>            | 1 | 0 | 0 |
| <i>Xenosaurus grandis</i>             | 1 | 1 | 1 |
| <i>Xenosaurus mendozai</i>            | 1 | 1 | 0 |
| <i>Xenosaurus newmanorum</i>          | 1 | 1 | 1 |
| <i>Xenosaurus penai</i>               | 1 | 1 | 0 |
| <i>Xenosaurus phalaroanthereon</i>    | 1 | 0 | 0 |
| <i>Xenosaurus platyceps</i>           | 1 | 1 | 1 |
| <i>Xenosaurus rackhami</i>            | 1 | 0 | 0 |
| <i>Xenosaurus rectocollaris</i>       | 1 | 1 | 1 |
| <i>Xenosaurus tzacualtipantecus</i>   | 1 | 0 | 0 |