

**Table 1 – Pelvic limb bone dimensions data**

| Age Group<br>(days) | Bird Number | Total leg length<br>(cm) | Bone lengths (% total leg length) |       |                 |
|---------------------|-------------|--------------------------|-----------------------------------|-------|-----------------|
|                     |             |                          | Femur                             | Tibia | Tarsometatarsus |
| 1                   | 1           | 6.9                      | 30.4                              | 40.6  | 29.0            |
| 1                   | 2           | 7.1                      | 29.6                              | 42.3  | 28.2            |
| 1                   | 3           | 6.8                      | 29.4                              | 45.6  | 25.0            |
| 1                   | 4           | 7.5                      | 30.7                              | 40.0  | 29.3            |
| 1                   | 5           | 7.7                      | 29.9                              | 42.9  | 27.3            |
| 1                   | 6           | 7.9                      | 30.4                              | 41.8  | 27.9            |
| 1                   | 7           | 7.9                      | 30.4                              | 40.5  | 29.1            |
| 1                   | 8           | 7.7                      | 31.2                              | 41.6  | 27.3            |
| 1                   | 9           | 8.1                      | 30.9                              | 39.5  | 29.6            |
| 1                   | 10          | 7.6                      | 31.6                              | 40.8  | 27.6            |
| 14                  | 1           | 15.1                     | 29.1                              | 41.7  | 29.1            |
| 14                  | 2           | 16.5                     | 27.9                              | 43.0  | 29.1            |
| 14                  | 3           | 15.7                     | 29.3                              | 42.0  | 28.7            |
| 14                  | 4           | 15.5                     | 27.8                              | 42.4  | 29.8            |
| 14                  | 5           | 15.8                     | 28.5                              | 41.8  | 29.8            |
| 14                  | 6           | 15.4                     | 29.2                              | 40.9  | 29.9            |
| 14                  | 7           | 16.4                     | 29.3                              | 41.5  | 29.3            |
| 14                  | 8           | 15.3                     | 29.4                              | 40.5  | 30.1            |
| 14                  | 9           | 15.2                     | 29.0                              | 41.5  | 29.6            |
| 14                  | 10          | 14.3                     | 31.5                              | 39.9  | 28.7            |
| 14                  | 11          | 14.8                     | 31.1                              | 40.5  | 28.4            |
| 14                  | 12          | 14.6                     | 29.5                              | 40.4  | 30.1            |
| 14                  | 13          | 13.3                     | 30.8                              | 40.6  | 28.6            |
| 14                  | 14          | 13.5                     | 30.4                              | 40.7  | 28.9            |
| 14                  | 15          | 13.9                     | 30.2                              | 40.3  | 29.5            |
| 14                  | 16          | 14.0                     | 31.4                              | 37.9  | 30.7            |
| 14                  | 17          | 13.8                     | 31.2                              | 39.9  | 29.0            |
| 14                  | 18          | 15.3                     | 30.1                              | 40.5  | 29.4            |
| 14                  | 19          | 14.2                     | 32.4                              | 41.6  | 26.1            |
| 28                  | 1           | 19.8                     | 27.6                              | 41.52 | 30.9            |
| 28                  | 2           | 21.6                     | 28.7                              | 40.28 | 31.0            |
| 28                  | 3           | 21.4                     | 28.0                              | 42.06 | 29.9            |
| 28                  | 4           | 20.9                     | 29.5                              | 41.73 | 28.8            |
| 28                  | 5           | 19.8                     | 29.3                              | 41.41 | 29.9            |
| 28                  | 6           | 20.4                     | 28.5                              | 41.03 | 30.5            |
| 28                  | 7           | 21.5                     | 28.8                              | 40.93 | 30.2            |
| 28                  | 8           | 20.9                     | 29.2                              | 40.67 | 30.1            |
| 28                  | 9           | 19.3                     | 28.5                              | 41.45 | 30.1            |
| 28                  | 10          | 23.1                     | 28.1                              | 39.83 | 32.0            |

**Table 1 cont.**

| Age Group<br>(days) | Bird Number | Total leg length<br>(cm) | Bone lengths (% total leg length) |       |                 |
|---------------------|-------------|--------------------------|-----------------------------------|-------|-----------------|
|                     |             |                          | Femur                             | Tibia | Tarsometatarsus |
| 28                  | 11          | 20.4                     | 29.41                             | 41.67 | 28.92           |
| 28                  | 12          | 21.0                     | 29.05                             | 41.43 | 29.52           |
| 28                  | 13          | 23.2                     | 31.03                             | 40.95 | 28.02           |
| 28                  | 14          | 21.6                     | 31.02                             | 36.57 | 32.41           |
| 28                  | 15          | 22.1                     | 28.96                             | 40.72 | 30.32           |
| 28                  | 16          | 24.8                     | 30.65                             | 38.31 | 31.05           |
| 28                  | 17          | 22.1                     | 31.22                             | 37.56 | 31.22           |
| 28                  | 18          | 21.0                     | 30.48                             | 40.00 | 29.52           |
| 28                  | 19          | 22.1                     | 29.41                             | 39.82 | 30.77           |
| 42                  | 1           | 28.3                     | 29.33                             | 41.70 | 28.98           |
| 42                  | 2           | 28.0                     | 27.91                             | 43.11 | 28.98           |
| 42                  | 3           | 27.8                     | 29.50                             | 41.37 | 29.14           |
| 42                  | 4           | 28.9                     | 28.72                             | 41.87 | 29.41           |
| 42                  | 5           | 29.7                     | 28.96                             | 42.42 | 28.62           |
| 42                  | 6           | 28.5                     | 29.47                             | 42.46 | 28.07           |
| 42                  | 7           | 29.2                     | 29.45                             | 41.95 | 28.6            |
| 42                  | 8           | 27.8                     | 26.62                             | 43.88 | 29.5            |
| 42                  | 9           | 29.1                     | 27.54                             | 43.37 | 29.09           |
| 42                  | 10          | 28.8                     | 28.82                             | 42.01 | 29.17           |
| 42                  | 11          | 28.5                     | 28.12                             | 42.88 | 29.00           |
| 42                  | 12          | 25.5                     | 28.24                             | 43.14 | 28.63           |
| 42                  | 13          | 24.2                     | 31.82                             | 39.26 | 28.93           |
| 42                  | 14          | 23.5                     | 29.79                             | 42.55 | 27.66           |
| 42                  | 15          | 25.0                     | 29.20                             | 42.80 | 28.00           |
| 42                  | 16          | 23.7                     | 29.96                             | 38.82 | 31.22           |
| 42                  | 17          | 23.2                     | 30.17                             | 39.66 | 30.17           |
| 42                  | 18          | 27.1                     | 28.41                             | 42.44 | 29.15           |
| 42                  | 19          | 24.9                     | 28.92                             | 42.17 | 28.92           |

**Table 2 - Pelvic limb segment inertial properties data**

| Age Group<br>(days) | Segment   | Bird Number | Segment Mass<br>(% body mass) | CoM Position<br>(% segment length) | Radius of gyration<br>(% segment length) |      |      |
|---------------------|-----------|-------------|-------------------------------|------------------------------------|--|------|------|
|                     |           |             |                               |                                    | x  | y    | z    |
| 14                  | Trunk     | 1           | 85.37                         | 16.41                              | 23.5                                     | 40.8 | 37.6 |
| 14                  | Trunk     | 2           | 83.50                         | 17.69                              | 24.1                                     | 41.4 | 37.9 |
| 14                  | Trunk     | 3           | 82.16                         | 22.45                              | 21.7                                     | 40.8 | 38.7 |
| 14                  | Trunk     | 4           | 77.09                         | 21.09                              | 24.2                                     | 41.5 | 36.6 |
| 14                  | Trunk     | 5           | 80.21                         | 19.73                              | 22.7                                     | 40.9 | 38.2 |
| 14                  | Thigh     | 1           | 4.68                          | 43.05                              | 39.2                                     | 46.3 | 46.4 |
| 14                  | Thigh     | 2           | 3.01                          | 44.78                              | 41.0                                     | 31.1 | 33.2 |
| 14                  | Thigh     | 3           | 6.48                          | 48.77                              |  | 46.8 | 39.5 |
| 14                  | Thigh     | 4           | 6.50                          | 37.03                              | 57.0                                     | 50.0 | 61.6 |
| 14                  | Thigh     | 5           | 5.28                          | 44.64                              | 51.5                                     | 46.2 | 67.5 |
| 14                  | Drumstick | 1           | 3.92                          | 36.70                              | 44.8                                     | 47.7 | 59.6 |
| 14                  | Drumstick | 2           | 3.59                          | 4.54                               | 59.9                                     | 61.4 | 27.7 |
| 14                  | Drumstick | 3           | 4.32                          | 35.53                              | 48.7                                     | 51.0 | 27.1 |
| 14                  | Drumstick | 4           | 3.76                          | 37.37                              | 47.1                                     | 49.2 | 22.9 |
| 14                  | Drumstick | 5           | 3.67                          | 36.09                              | 44.7                                     | 46.0 | 21.0 |
| 14                  | Shank     | 1           | 0.91                          | 17.91                              | 52.3                                     | 52.5 | 17.9 |
| 14                  | Shank     | 2           | 0.92                          | 43.51                              | 49.7                                     | 49.9 | 18.2 |
| 14                  | Shank     | 3           | 1.07                          | 40.15                              | 51.2                                     | 51.3 | 18.2 |
| 14                  | Shank     | 4           | 0.92                          | 38.01                              | 50.0                                     | 50.2 | 18.2 |
| 14                  | Shank     | 5           | 1.07                          | 41.03                              | 49.6                                     | 50.0 | 17.7 |
| 14                  | Foot      | 1           | 0.63                          | 35.07                              | 33.0                                     | 34.4 | 21.9 |
| 14                  | Foot      | 2           | 0.62                          | 39.48                              | 35.3                                     | 33.7 | 21.7 |
| 14                  | Foot      | 3           | 0.68                          | 45.23                              | 35.0                                     | 33.7 | 23.5 |
| 14                  | Foot      | 4           | 0.62                          | 34.44                              | 34.4                                     | 37.2 | 25.0 |
| 14                  | Foot      | 5           | 0.60                          | 38.87                              | 33.9                                     | 37.2 | 24.2 |
| 28                  | Trunk     | 1           | 80.08                         | 15.72                              | 24.1                                     | 38.1 | 36.1 |
| 28                  | Trunk     | 2           | 78.40                         | 25.96                              | 24.3                                     | 38.5 | 34.6 |
| 28                  | Trunk     | 3           | 75.22                         | 18.56                              | 22.6                                     | 41.6 | 39.2 |
| 28                  | Trunk     | 4           | 78.83                         | 22.91                              | 23.3                                     | 40.1 | 37.2 |
| 28                  | Trunk     | 5           | 77.39                         | 17.11                              | 25.8                                     | 41.7 | 38.2 |
| 28                  | Thigh     | 1           | 5.63                          | 37.23                              | 53.2                                     | 40.4 | 60.2 |
| 28                  | Thigh     | 2           | 4.53                          | 40.17                              | 39.2                                     | 33.8 | 45.1 |
| 28                  | Thigh     | 3           | 5.49                          | 36.38                              | 48.6                                     | 45.5 | 61.4 |
| 28                  | Thigh     | 4           | 5.15                          | 40.41                              | 45.7                                     | 41.1 | 52.4 |
| 28                  | Thigh     | 5           | 5.30                          | 36.45                              | 54.7                                     | 42.0 | 41.5 |
| 28                  | Drumstick | 1           | 4.26                          | 31.40                              | 36.7                                     | 39.0 | 22.3 |
| 28                  | Drumstick | 2           | 4.23                          | 34.44                              | 45.4                                     | 47.9 | 23.3 |
| 28                  | Drumstick | 3           | 4.25                          | 35.87                              | 44.6                                     | 46.0 | 22.6 |
| 28                  | Drumstick | 4           | 5.15                          | 30.73                              | 33.0                                     | 38.0 | 29.7 |
| 28                  | Drumstick | 5           | 5.30                          | 30.99                              | 39.6                                     | 30.0 | 30.3 |

**Table 2 cont.**

| Age Group<br>(days) | Segment   | Bird Number | Segment Mass<br>(% body mass) | CoM Position<br>(% segment length) | Radius of gyration<br>(% segment length) |      |      |
|---------------------|-----------|-------------|-------------------------------|------------------------------------|--|------|------|
|                     |           |             |                               |                                    | x  | y    | z    |
| 28                  | Shank     | 1           | 0.84                          | 20.26                              | 48.8                                     | 49.1 | 16.2 |
| 28                  | Shank     | 2           | 1.17                          | 19.56                              | 46.7                                     | 47.0 | 17.0 |
| 28                  | Shank     | 3           | 1.01                          | 19.69                              | 50.0                                     | 50.2 | 16.8 |
| 28                  | Shank     | 4           | 0.99                          | 19.58                              | 53.0                                     | 53.9 | 19.2 |
| 28                  | Shank     | 5           | 1.08                          | 7.42                               | 50.4                                     | 50.7 | 16.5 |
| 28                  | Foot      | 1           | 0.54                          | 22.75                              | 28.0                                     | 19.0 | 28.9 |
| 28                  | Foot      | 2           | 0.71                          | 30.21                              | 29.6                                     | 17.0 | 28.8 |
| 28                  | Foot      | 3           | 0.66                          | 22.99                              | 30.7                                     | 17.3 | 30.3 |
| 28                  | Foot      | 4           | 0.56                          | 40.39                              | 33.6                                     | 32.1 | 20.1 |
| 28                  | Foot      | 5           | 0.59                          | 25.87                              | 32.8                                     | 20.2 | 31.7 |
| 42                  | Trunk     | 1           | 75.72                         | 15.33                              | 47.4                                     | 35.5 | 37.7 |
| 42                  | Trunk     | 2           | 75.09                         | 13.20                              | 44.9                                     | 35.6 | 35.8 |
| 42                  | Trunk     | 3           | 74.82                         | 13.53                              | 25.5                                     | 38.8 | 33.8 |
| 42                  | Trunk     | 4           | 71.63                         | 14.63                              | 22.9                                     |      | 33.1 |
| 42                  | Trunk     | 5           | 75.59                         | 19.80                              | 25.2                                     | 38.2 | 34.2 |
| 42                  | Thigh     | 1           | 8.22                          | 29.44                              | 39.3                                     | 43.3 | 54.0 |
| 42                  | Thigh     | 2           | 7.55                          | 26.65                              | 57.7                                     | 48.4 | 60.2 |
| 42                  | Thigh     | 3           | 7.80                          | 30.45                              | 42.1                                     | 37.0 | 42.4 |
| 42                  | Thigh     | 4           | 9.95                          | 25.74                              | 45.4                                     | 40.0 | 48.1 |
| 42                  | Thigh     | 5           | 7.51                          | 31.25                              | 46.2                                     | 43.6 | 56.7 |
| 42                  | Drumstick | 1           | 5.51                          | 28.85                              | 38.7                                     | 40.0 | 22.6 |
| 42                  | Drumstick | 2           | 5.55                          | 26.85                              | 46.2                                     | 44.3 | 37.2 |
| 42                  | Drumstick | 3           | 5.57                          | 20.44                              | 33.1                                     | 33.7 | 17.3 |
| 42                  | Drumstick | 4           | 5.82                          | 25.59                              | 38.4                                     | 39.9 | 23.6 |
| 42                  | Drumstick | 5           | 5.86                          | 19.05                              | 13.3                                     | 13.4 | 4.9  |
| 42                  | Shank     | 1           | 1.13                          | 22.04                              | 35.7                                     | 36.0 | 13.3 |
| 42                  | Shank     | 2           | 1.13                          | 26.81                              | 43.2                                     | 38.8 | 15.7 |
| 42                  | Shank     | 3           | 1.10                          | 26.43                              | 32.6                                     | 32.8 | 12.5 |
| 42                  | Shank     | 4           | 1.54                          | 11.89                              | 38.2                                     | 38.5 | 14.4 |
| 42                  | Shank     | 5           | 1.23                          | 25.57                              | 40.2                                     | 39.5 | 60.2 |
| 42                  | Foot      | 1           | 0.91                          | 46.84                              | 36.2                                     | 33.1 | 20.9 |
| 42                  | Foot      | 2           | 0.74                          | 51.51                              | 67.2                                     | 25.6 | 67.7 |
| 42                  | Foot      | 3           | 1.10                          | 44.90                              | 29.9                                     | 32.4 | 23.3 |
| 42                  | Foot      | 4           | 0.89                          | 67.53                              | 33.0                                     | 32.8 | 19.1 |
| 42                  | Foot      | 5           | 0.92                          | 48.47                              | 26.9                                     | 25.6 | 17.3 |

**Table 3 – Whole Body Centre of Mass Position Data**

| Age Group<br>(days) | Bird Number | Centre of mass position<br>(% femur length) |                |
|---------------------|-------------|---|----------------|
|                     |             | Cranial – caudal                            | Dorsal-ventral |
| 14                  | 1           | 88.6  | 73.4           |
| 14                  | 2           | 92.2  | 81.6           |
| 14                  | 3           | 103.3                                       | 106.1          |
| 14                  | 4           | 74.1  | 98.7           |
| 14                  | 5           | 94.9  | 89.3           |
| 28                  | 1           | 72.3  | 17.5           |
| 28                  | 2           | 66.3  | 74.3           |
| 28                  | 3           | 66.3  | 44.9           |
| 28                  | 4           | 74.4  | 65.9           |
| 28                  | 5           | 62.2  | 36.5           |
| 42                  | 1           | 78.0  | 7.4            |
| 42                  | 2           | 97.2  | 11.0           |
| 42                  | 3           | 70.6  | 27.7           |
| 42                  | 4           | 68.7  | 42.9           |
| 42                  | 5           | 68.4  | 52.1           |

**Table 4 – Bone Scaling**

| Age Group<br>(days) | Bird Number | Body Mass<br>(kg) | Femur<br>(cm) | Tibia<br>(cm) | TMT<br>(cm) |
|---------------------|-------------|-------------------|---------------|---------------|-------------|
| 1                   | 1           | 0.044             | 2.1           | 2.8           | 2.0         |
| 1                   | 2           | 0.045             | 2.1           | 3.0           | 2.0         |
| 1                   | 3           | 0.041             | 2.0           | 3.1           | 1.7         |
| 1                   | 4           | 0.038             | 2.3           | 3.0           | 2.2         |
| 1                   | 5           | 0.043             | 2.3           | 3.3           | 2.1         |
| 1                   | 6           | 0.048             | 2.4           | 3.3           | 2.2         |
| 1                   | 7           | 0.041             | 2.4           | 3.2           | 2.3         |
| 1                   | 8           | 0.048             | 2.4           | 3.2           | 2.1         |
| 1                   | 9           | 0.045             | 2.5           | 3.2           | 2.4         |
| 1                   | 10          | 0.045             | 2.4           | 3.1           | 2.1         |
| 14                  | 1           | 0.620             | 4.4           | 6.3           | 4.4         |
| 14                  | 2           | 0.700             | 4.6           | 7.1           | 4.8         |
| 14                  | 3           | 0.660             | 4.6           | 6.6           | 4.5         |
| 14                  | 4           | 0.540             | 4.3           | 6.6           | 4.6         |
| 14                  | 6           | 0.600             | 4.5           | 6.6           | 4.7         |
| 14                  | 7           | 0.540             | 4.5           | 6.3           | 4.6         |
| 14                  | 8           | 0.580             | 4.8           | 6.8           | 4.8         |
| 14                  | 9           | 0.560             | 4.5           | 6.2           | 4.6         |
| 14                  | 10          | 0.480             | 4.4           | 6.3           | 4.5         |
| 14                  | 11          | 0.440             | 4.5           | 5.7           | 4.1         |
| 14                  | 12          | 0.451             | 4.6           | 6.0           | 4.2         |
| 14                  | 13          | 0.394             | 4.3           | 5.9           | 4.4         |
| 14                  | 14          | 0.434             | 4.1           | 5.4           | 3.8         |
| 14                  | 15          | 0.436             | 4.1           | 5.5           | 3.9         |
| 14                  | 16          | 0.441             | 4.2           | 5.6           | 4.1         |
| 14                  | 17          | 0.382             | 4.4           | 5.3           | 4.3         |
| 14                  | 18          | 0.446             | 4.3           | 5.5           | 4.0         |
| 14                  | 19          | 0.424             | 4.6           | 6.2           | 4.5         |
| 14                  | 20          | 0.459             | 4.6           | 5.9           | 3.7         |
| 28                  | 1           | 1.320             | 5.5           | 8.2           | 6.1         |
| 28                  | 2           | 1.420             | 6.2           | 8.7           | 6.7         |
| 28                  | 3           | 1.380             | 6.0           | 9.0           | 6.4         |
| 28                  | 4           | 1.580             | 6.2           | 8.7           | 6.0         |
| 28                  | 5           | 1.300             | 5.8           | 8.2           | 5.8         |
| 28                  | 6           | 1.460             | 5.8           | 8.4           | 6.2         |
| 28                  | 7           | 1.500             | 6.2           | 8.8           | 6.5         |
| 28                  | 8           | 1.380             | 6.1           | 8.5           | 6.3         |
| 28                  | 9           | 1.340             | 5.5           | 8.0           | 5.8         |
| 28                  | 10          | 1.425             | 6.5           | 9.2           | 7.4         |

**Table 4 cont.**

| Age Group<br>(days) | Bird Number | Body Mass<br>(kg) | Femur<br>(cm) | Tibia<br>(cm) | TMT<br>(cm) |
|---------------------|-------------|-------------------|---------------|---------------|-------------|
| 28                  | 11          | 1.468             | 6.0           | 8.5           | 5.9         |
| 28                  | 12          | 1.559             | 6.1           | 8.7           | 6.2         |
| 28                  | 13          | 1.717             | 7.2           | 9.5           | 6.5         |
| 28                  | 14          | 1.545             | 6.7           | 7.9           | 7.0         |
| 28                  | 15          | 1.671             | 6.4           | 9.0           | 6.7         |
| 28                  | 16          | 2.023             | 7.6           | 9.5           | 7.7         |
| 28                  | 17          | 1.594             | 6.9           | 8.3           | 6.9         |
| 28                  | 18          | 1.798             | 6.4           | 8.4           | 6.2         |
| 28                  | 19          | 1.606             | 6.5           | 8.8           | 6.8         |
| 42                  | 1           | 3.254             | 8.3           | 11.8          | 8.2         |
| 42                  | 2           | 3.250             | 7.8           | 12.1          | 8.1         |
| 42                  | 3           | 3.250             | 8.2           | 11.5          | 8.1         |
| 42                  | 4           | 3.358             | 8.3           | 12.1          | 8.5         |
| 42                  | 5           | 3.200             | 8.6           | 12.6          | 8.5         |
| 42                  | 6           | 3.496             | 8.4           | 12.1          | 8.0         |
| 42                  | 7           | 3.152             | 8.6           | 12.3          | 8.35        |
| 42                  | 8           | 3.686             | 7.4           | 12.2          | 8.2         |
| 42                  | 9           | 3.475             | 8.0           | 12.6          | 8.45        |
| 42                  | 10          | 3.222             | 8.3           | 12.1          | 8.4         |
| 42                  | 11          | 3.178             | 8.0           | 12.2          | 8.25        |
| 42                  | 12          | 2.786             | 7.2           | 11.0          | 7.3         |
| 42                  | 13          | 2.917             | 7.7           | 9.5           | 7.0         |
| 42                  | 14          | 2.529             | 7.0           | 10.0          | 6.5         |
| 42                  | 15          | 2.474             | 7.3           | 10.7          | 7.0         |
| 42                  | 16          | 2.414             | 7.1           | 9.2           | 7.4         |
| 42                  | 17          | 2.209             | 7.0           | 9.2           | 7.0         |
| 42                  | 18          | 2.470             | 7.7           | 11.5          | 7.9         |
| 42                  | 19          | 2.155             | 7.2           | 10.5          | 7.2         |