Supplementary Material for

Relationship between developmental modes, flight styles and wing morphology in birds
Authors: Oksana V. Shatkovska*1, Maria Ghazali*2

Addresses: * – Schmalhausen Institute of Zoology of NAS of Ukraine, Vul. B. Khmelnytskogo, 15, Kyiv, 01030, Ukraine
Emails:
1 – shatkovskayaoksana@gmail.com
2 – ghazali.maria@gmail.com

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**Table S1: Wings measurements and body mass of bird species**

NULES - Museum of Animal Anatomy (National University of Life and Environmental Sciences of Ukraine)

| Order     | Family   | Species      | Developmental mode | Flight style | $M$ (g) | $hu$ (mm) | $ul$ (mm) | $mn$ (mm) | $fprim$ (mm) | $ta$ (mm) | Source                  |
|-----------|----------|--------------|--------------------|--------------|---------|-----------|-----------|-----------|---------------|-----------|-------------------------|
| Upupiformes | Upupidae | *Upupa epops* | altricial          | CF           | 61.40   | 33.44     | 44.06     | 29.06     | 132           | 106.56   | Wang et al. (2011)       |
| Strigiformes | Strigidae | *Asio flammeus* | intermediate      | CF           | 330.00  | 91.30     | 104.00    | 92.00     | 287.30        | 243.30   | № 216 NULES*             |
| Strigiformes | Strigidae | *Asio flammeus* | intermediate      | CF           | 346.50  | 83.57     | 100.73    | 59.00     | 246           |           | Wang et al. (2011)       |
| Strigiformes | Strigidae | *Asio otus*   | intermediate       | CF           | 262.00  | 80.40     | 92.14     | 48.88     | 250           | 221.42   | Wang et al. (2011)       |
| Strigiformes | Strigidae | *Athene noctua* | intermediate      | CF           | 164.00  | 54.08     | 69.80     | 41.96     | 123           | 165.84   | Wang et al. (2011)       |
| Strigiformes | Strigidae | *Bubo bubo*   | intermediate       | CF           | 2686.00 | 157.79    | 183.77    | 112.13    | 358           | 453.69   | Wang et al. (2011)       |
| Strigiformes | Strigidae | *Bubo scandiaca* | intermediate    | CF           | 2042.50 | 156.00    | 169.00    | 84.00     | 340           | 409.00   | Wang et al. (2011)       |
| Strigiformes | Strigidae | *Otus scops*  | intermediate      | CF           | 92.00   | 67.07     | 86.41     | 57.75     | 124           | 211.23   | Wang et al. (2011)       |
| Strigiformes | Strigidae | *Strix aluco* | intermediate      | CF           | 830.00  | 105.00    | 115.00    | 75.00     | 295.00        |           | № 379 NULES*             |
| Strigiformes | Strigidae | *Strix aluco* | intermediate      | CF           | 475.00  | 84.01     | 95.03     | 55.80     | 185           | 234.84   | Wang et al. (2011)       |
| Strigiformes | Strigidae | *Surnia ulula* | intermediate      | CF           | 325.00  | 70.20     | 80.20     | 66.00     | 216.40        |           | № 322 NULES*             |
| Strigiformes | Strigidae | *Tyto alba*   | intermediate      | CF           | 447.00  | 82.52     | 91.41     | 51.75     | 230           | 225.68   | Wang et al. (2011)       |
| Order          | Family           | Species                        | Developmental mode | Flight style | M (g) | hu (mm) | ul (mm) | mn (mm) | fprim (mm) | ta (mm) | Source       |
|---------------|------------------|--------------------------------|--------------------|--------------|-------|--------|--------|--------|-----------|--------|--------------|
| Psittaciformes| Cacatuidae       | Nymphicus hollandicus          | altricial          |              | 90.00 | 30.00  | 35.00  | 41.00  | 106.00    |        | № 396       |
|               |                  |                                |                    |              |       |        |        |        |           |        | NULES*       |
| Psittaciformes| Psittacidae      | Agapornis roseicollis          | altricial          |              | 47.00 | 17.00  | 23.00  | 27.00  | 67.00     |        | № 585       |
|               |                  |                                |                    |              |       |        |        |        |           |        | NULES*       |
| Psittaciformes| Psittacidae      | Melopsittacus undulatus        | altricial          |              | 42.00 | 14.00  | 19.00  | 25.00  | 58.00     |        | NULES*       |
| Psittaciformes| Psittacidae      | Poicephalus senegalus          | altricial          |              | 130.00| 40.00  | 41.00  | 44.00  | 125.00    |        | № 333       |
|               |                  |                                |                    |              |       |        |        |        |           |        | NULES*       |
| Psittaciformes| Psittacidae      | Psittacus erithacus            | altricial          |              | 400.00| 60.00  | 70.00  | 78.00  | 208.00    |        | № 323       |
|               |                  |                                |                    |              |       |        |        |        |           |        | NULES*       |
| Podicipediformes| Podicipedidae   | Podiceps auritus               | precocial          | CF           | 453.00| 77.65  | 67.93  | 33.85  | 124       | 179.43 | Wang et al. (2011) |
| Podicipediformes| Podicipedidae   | Podiceps cristatus             | precocial          | CF           | 673.50| 108.05 | 102.20 | 62.28  | 162       | 272.53 | Wang et al. (2011) |
| Podicipediformes| Podicipedidae   | Podiceps grisegena             | precocial          | CF           | 1023.00| 107.14 | 98.82  | 45.22  | 161       | 251.18 | Wang et al. (2011) |
| Podicipediformes| Podicipedidae   | Podiceps nigricollis           | precocial          | CF           | 292.00| 69.68  | 63.88  | 31.00  | 116       | 164.56 | Wang et al. (2011) |
| Piciformes    | Picidae          | Dendrocopos major              | altricial          | PT           | 81.60 | 32.02  | 36.79  | 29.58  | 118       | 98.39  | Wang et al. (2011) |
| Piciformes    | Picidae          | Dendrocopos major              | altricial          | PT           | 80.00 | 30.00  | 40.00  | 25.00  | 95.00     |        | № 466       |
| Piciformes    | Picidae          | Dendrocopos minor              | altricial          | PT           | 19.80 | 21.20  | 24.09  | 15.65  | 68        | 60.94  | Wang et al. (2011) |
| Piciformes    | Picidae          | Dryocopus martius              | altricial          | PT           | 321.00| 54.00  | 60.00  | 50.00  | 156       | 164.00 | Wang et al. (2011) |
| Piciformes    | Picidae          | Picus viridis                  | altricial          | PT           | 176.00| 41.55  | 48.08  | 35.03  | 105       | 124.66 | Wang et al. (2011) |
| Pelecaniformes| Pelecanidae      | Pelecanus crispus              | intermediate       |              | 10000.00 | 385.00 | 410.00 | 290.00 | 1085.00   |        | № 126       |
|               |                  |                                |                    |              |       |        |        |        |           |        | NULES*       |
| Order         | Family          | Species            | Developmental mode | Flight style | M (g) | hu (mm) | ul (mm) | mn (mm) | fprim (mm) | ta (mm) | Source          |
|---------------|-----------------|--------------------|--------------------|--------------|-------|---------|---------|---------|------------|---------|----------------|
| Pelecaniformes| Pelecanidae     | *Pelecanus onocrotalus* | intermediate      | FS           | 9600.00 | 325.00  | 371.00  | 139.20  | 430        | 835.20  | Wang et al. (2011) |
| Pelecaniformes| Phalacrocoracidae| *Phalacrocorax aristotelis* | intermediate      | CF           | 1769.00 | 122.30  | 133.50  | 56.50   | 193        | 312.30  | Wang et al. (2011) |
| Pelecaniformes| Phalacrocoracidae| *Phalacrocorax carbo* | intermediate      | CF           | 2109.50 | 161.11  | 174.07  | 105.57  | 269        | 440.75  | Wang et al. (2011) |
| Pelecaniformes| Phalacrocoracidae| *Phalacrocorax carbo* | intermediate      | CF           | 2750.00 | 155.00  | 170.00  | 131.00  | 456        | 456.00  | NULES*         |
| Passeriformes | Acrocephalidae  | *Acrocephalus schoenobaenus* | altricial       | PT           | 11.20  | 12.69   | 15.17   | 12.38   | 63         | 40.24   | Wang et al. (2011) |
| Passeriformes | Acrocephalidae  | *Acrocephalus scirpaceus* | altricial       | PT           | 12.30  | 11.93   | 16.84   | 14.97   | 57         | 43.74   | Wang et al. (2011) |
| Passeriformes | Aegithalidae    | *Aegithalos caudatus* | altricial       | PT           | 8.20   | 11.00   | 13.85   | 11.00   | 45         | 35.85   | Wang et al. (2011) |
| Passeriformes | Alaudidae       | *Alauda arvensis*   | altricial       | PT           | 39.95  | 25.16   | 30.63   | 24.01   | 85         | 79.80   | Wang et al. (2011) |
| Passeriformes | Bombycillidae   | *Bombycilla garrulus* | altricial       | PT           | 56.40  | 22.20   | 27.40   | 15.50   | 101        | 65.10   | Wang et al. (2011) |
| Passeriformes | Calcariidae     | *Plectrophenax nivalis* | altricial       | PT           | 42.20  | 20.20   | 23.65   | 18.85   | 103        | 62.70   | Wang et al. (2011) |
| Passeriformes | Certhiidae      | *Certhia familiaris* | altricial       | PT           | 9.00   | 12.80   | 15.80   | 8.37    | 53         | 36.97   | Wang et al. (2011) |
| Passeriformes | Cinclidae       | *Cinclus cinclus*   | altricial       | PT           | 59.80  | 22.00   | 24.90   | 19.20   | 82         | 66.10   | Wang et al. (2011) |
| Passeriformes | Corvidae        | *Corvus corone*     | altricial       | CF           | 570.00 | 66.26   | 79.50   | 69.63   | 228        | 215.39  | Wang et al. (2011) |
| Passeriformes | Corvidae        | *Corvus frugilegus* | altricial       | CF           | 488.00 | 66.98   | 81.93   | 67.68   | 270        | 216.59  | Wang et al. (2011) |
| Passeriformes | Corvidae        | *Corvus frugilegus* | altricial       | CF           | 426.00 | 63.00   | 78.00   | 76.00   | 217        | 217.00  | № 242 NULES*     |
| Order          | Family         | Species                  | Developmental mode | Flight style | M (g) | hu (mm) | ul (mm) | mn (mm) | fprim (mm) | ta (mm) | Source               |
|---------------|----------------|--------------------------|--------------------|--------------|-------|--------|--------|--------|------------|--------|----------------------|
| Passeriformes | Corvidae       | *Corvus monedula*        | altricial          | CF           | 275.00| 47.36  | 60.46  | 49.92  | 204        | 157.74 | Wang et al. (2011)   |
| Passeriformes | Corvidae       | *Garrulus glandarius*    | altricial          | CF           | 161.00| 41.68  | 49.06  | 36.06  | 125        | 126.80 | Wang et al. (2011)   |
| Passeriformes | Corvidae       | *Garrulus glandarius*    | altricial          | CF           | 170.00| 40.00  | 49.00  | 35.00  | 124        |        | № 586 NULES*         |
| Passeriformes | Corvidae       | *Pica pica*              | altricial          | CF           | 177.50| 43.09  | 51.31  | 35.40  | 127        | 129.80 | Wang et al. (2011)   |
| Passeriformes | Emberizidae    | *Emberiza cirtus*        | altricial          | PT           | 23.10 | 17.70  | 19.65  | 19.37  | 67         | 56.72  | Wang et al. (2011)   |
| Passeriformes | Emberizidae    | *Emberiza citrinella*    | altricial          | PT           | 26.50 | 20.52  | 24.04  | 20.25  | 68         | 64.81  | Wang et al. (2011)   |
| Passeriformes | Emberizidae    | *Emberiza schoeniclus*   | altricial          | PT           | 18.30 | 17.96  | 20.59  | 18.77  | 62         | 57.32  | Wang et al. (2011)   |
| Passeriformes | Estrildidae    | *Taeniopygia guttata*    | altricial          |              | 18.00 | 12.00  | 16.00  | 15.00  | 43         | 43.00  | № 396 NULES*         |
| Passeriformes | Fringillidae   | *Carduelis cannabina*    | altricial          | PT           | 15.30 | 17.03  | 20.99  | 13.93  | 43         | 51.95  | Wang et al. (2011)   |
| Passeriformes | Fringillidae   | *Carduelis carduelis*    | altricial          | PT           | 20.00 | 16.85  | 22.98  | 21.19  | 63         | 61.02  | Wang et al. (2011)   |
| Passeriformes | Fringillidae   | *Carduelis chloris*      | altricial          | PT           | 27.80 | 19.03  | 23.37  | 15.28  | 74         | 57.68  | Wang et al. (2011)   |
| Passeriformes | Fringillidae   | *Carduelis spinus*       | altricial          | PT           | 14.50 | 12.98  | 15.94  | 15.71  | 68         | 44.63  | Wang et al. (2011)   |
| Passeriformes | Fringillidae   | *Coccothraustes coccothraustes* | altricial |    | 55.00 | 23.50  | 25.00  | 26.50  | 75.00     |        | № 328 NULES*         |
| Passeriformes | Fringillidae   | *Coccothraustes coccothraustes* | altricial | PT | 54.00 | 23.64  | 26.77  | 23.64  | 98         | 74.05  | Wang et al. (2011)   |
| Order       | Family      | Species               | Developmental mode | Flight style | M (g) | hu (mm) | ul (mm) | mn (mm) | fprim (mm) | ta (mm) | Source       |
|------------|-------------|-----------------------|-------------------|--------------|--------|---------|---------|---------|------------|---------|--------------|
| Passeriformes | Fringillidae | *Fringilla coelebs* | altricial         | PT           | 21.40  | 18.16   | 22.43   | 20.01   | 65         | 60.60  | Wang et al. (2011) |
| Passeriformes | Fringillidae | *Fringilla montifringilla* | altricial         | PT           | 24.00  | 18.87   | 22.86   | 20.83   | 83         | 62.56  | Wang et al. (2011) |
| Passeriformes | Fringillidae | *Loxia curvirostra* | altricial         | PT           | 36.50  | 20.50   | 25.24   | 20.77   | 81         | 66.51  | Wang et al. (2011) |
| Passeriformes | Fringillidae | *Pyrrhula pyrrhula* | altricial         | PT           | 21.80  | 18.94   | 23.27   | 16.39   | 62         | 58.60  | Wang et al. (2011) |
| Passeriformes | Hirundinidae | *Delichon urbicum* | altricial         | FG           | 14.50  | 13.98   | 21.30   | 16.57   | 95         | 51.85  | Wang et al. (2011) |
| Passeriformes | Hirundinidae | *Hirundo rustica* | altricial         | FG           | 16.00  | 14.98   | 23.41   | 20.56   | 105        | 58.95  | Wang et al. (2011) |
| Passeriformes | Hirundinidae | *Riparia riparia* | altricial         | FG           | 14.60  | 14.50   | 21.12   | 17.89   | 102        | 53.51  | Wang et al. (2011) |
| Passeriformes | Laniidae     | *Lanius collurio*    | altricial         | PT           | 29.90  | 20.18   | 23.85   | 19.60   | 80         | 63.63  | Wang et al. (2011) |
| Passeriformes | Laniidae     | *Lanius excubitor*   | altricial         | PT           | 65.60  | 26.86   | 33.02   | 20.77   | 92         | 80.65  | Wang et al. (2011) |
| Passeriformes | Laniidae     | *Lanius senator*     | altricial         | PT           | 29.10  | 21.65   | 29.66   | 21.65   | 73         | 72.96  | Wang et al. (2011) |
| Passeriformes | Motacillidae | *Anthus pratensis*   | altricial         | PT           | 18.40  | 19.52   | 23.85   | 16.65   | 78         | 60.02  | Wang et al. (2011) |
| Passeriformes | Motacillidae | *Motacilla alba*     | altricial         | PT           | 22.70  | 19.21   | 23.90   | 16.28   | 74         | 59.39  | Wang et al. (2011) |
| Passeriformes | Motacillidae | *Motacilla cinerea*  | altricial         | PT           | 17.60  | 18.07   | 23.77   | 15.08   | 78         | 56.92  | Wang et al. (2011) |
| Order      | Family      | Species                        | Developmental mode | Flight style | $M$ (g) | $hu$ (mm) | $ul$ (mm) | $mn$ (mm) | $fprim$ (mm) | $ta$ (mm) | Source            |
|------------|-------------|--------------------------------|--------------------|--------------|--------|----------|----------|----------|-------------|----------|------------------|
| Passeriformes | Muscicapidae | *Erithacus rubecula*            | altricial          | PT           | 18.20  | 16.39    | 19.52    | 15.01    | 51          | 50.92    | Wang et al. (2011) |
| Passeriformes | Muscicapidae | *Ficedula hypoleuca*           | altricial          | PT           | 11.60  | 14.85    | 21.82    | 18.10    | 62          | 54.77    | Wang et al. (2011) |
| Passeriformes | Muscicapidae | *Luscinia megarhynchos*        | altricial          | PT           | 19.63  | 17.00    | 22.93    | 18.81    | 81          | 58.74    | Wang et al. (2011) |
| Passeriformes | Muscicapidae | *Luscinia svecica*             | altricial          | PT           | 16.63  | 16.02    | 20.87    | 17.72    | 63          | 54.61    | Wang et al. (2011) |
| Passeriformes | Muscicapidae | *Monticola solitarius*         | altricial          | PT           | 53.75  | 25.84    | 35.77    | 33.79    | 97          | 95.40    | Wang et al. (2011) |
| Passeriformes | Muscicapidae | *Muscicapa striata*            | altricial          | PT           | 14.60  | 15.40    | 21.70    | 14.55    | 70          | 51.65    | Wang et al. (2011) |
| Passeriformes | Muscicapidae | *Phoenicurus phoenicurus*      | altricial          | PT           | 14.60  | 15.99    | 20.34    | 14.81    | 75          | 51.14    | Wang et al. (2011) |
| Passeriformes | Muscicapidae | *Saxicola rubetra*             | altricial          | PT           | 16.60  | 16.18    | 22.06    | 16.05    | 67          | 54.29    | Wang et al. (2011) |
| Passeriformes | Muscicapidae | *Saxicola torquatus*           | altricial          | PT           | 13.25  | 15.75    | 19.88    | 12.84    | 53          | 48.47    | Wang et al. (2011) |
| Passeriformes | Oriolidae    | *Oriolus oriolus*              | altricial          | PT           | 79.00  | 31.95    | 40.84    | 31.45    | 119         | 104.24   | Wang et al. (2011) |
| Passeriformes | Paridae      | *Parus ater*                   | altricial          | PT           | 9.10   | 12.70    | 15.10    | 8.70     | 46          | 36.50    | Wang et al. (2011) |
| Passeriformes | Paridae      | *Parus caeruleus*              | altricial          | PT           | 13.30  | 13.95    | 17.01    | 14.45    | 45          | 45.41    | Wang et al. (2011) |
| Passeriformes | Paridae      | *Parus major*                  | altricial          | PT           | 20.00  | 19.00    | 20.00    | 17.20    | 56.20       | 56.20    | № 312 NULES*      |
| Passeriformes | Paridae      | *Parus major*                  | altricial          | PT           | 19.00  | 16.42    | 20.00    | 14.86    | 49          | 51.28    | Wang et al. (2011) |
| Order            | Family          | Species                  | Developmental mode | Flight style | $M$ (g) | $hu$ (mm) | $ul$ (mm) | $mn$ (mm) | $fprim$ (mm) | $ta$ (mm) | Source          |
|------------------|-----------------|--------------------------|--------------------|--------------|---------|-----------|-----------|-----------|-------------|-----------|----------------|
| Passeriformes    | Paridae         | *Parus montanus*         | altricial          | PT           | 10.20   | 13.60     | 16.30     | 9.00      | 40          | 38.90     | Wang et al. (2011) |
| Passeriformes    | Passeridae      | *Passer domesticus*      | altricial          | PT           | 27.70   | 19.09     | 22.45     | 20.29     | 63          | 61.83     | Wang et al. (2011) |
| Passeriformes    | Passeridae      | *Passer montanus*        | altricial          | PT           | 22.00   | 17.00     | 19.00     | 17.00     | 53.00       |           | № 304 NULES* |
| Passeriformes    | Passeridae      | *Passer montanus*        | altricial          | PT           | 22.00   | 16.79     | 18.92     | 15.71     | 64          | 51.42     | Wang et al. (2011) |
| Passeriformes    | Prunellidae     | *Prunella modularis*     | altricial          | PT           | 20.25   | 16.44     | 17.99     | 15.55     | 54          | 49.98     | Wang et al. (2011) |
| Passeriformes    | Regulidae       | *Regulus regulus*        | altricial          | PT           | 5.70    | 8.82      | 12.72     | 8.22      | 39          | 29.76     | Wang et al. (2011) |
| Passeriformes    | Sittidae        | *Sitta europaea*         | altricial          | PT           | 22.00   | 18.53     | 22.32     | 18.08     | 68          | 58.93     | Wang et al. (2011) |
| Passeriformes    | Sturnidae       | *Sturnus vulgaris*       | altricial          | PT           | 82.30   | 27.77     | 33.73     | 30.97     | 107         | 92.47     | Wang et al. (2011) |
| Passeriformes    | Sylviidae       | *Sylvia atricapilla*     | altricial          | PT           | 15.50   | 16.97     | 20.01     | 19.00     | 63          | 55.98     | Wang et al. (2011) |
| Passeriformes    | Sylviidae       | *Sylvia curruca*         | altricial          | PT           | 10.10   | 13.10     | 15.80     | 8.80      | 60          | 37.70     | Wang et al. (2011) |
| Passeriformes    | Tichodromadidae | *Tichodroma muraria*     | altricial          | PT           | 17.20   | 19.98     | 25.90     | 21.95     | 70          | 67.83     | Wang et al. (2011) |
| Passeriformes    | Trogloidyidae   | *Troglocytes aedon*      | altricial          | PT           | 10.90   | 13.18     | 14.42     | 11.30     | 34          | 38.90     | Wang et al. (2011) |
| Passeriformes    | Turdidae        | *Turdus iliacus*         | altricial          | PT           | 61.20   | 26.51     | 31.88     | 21.25     | 93          | 79.64     | Wang et al. (2011) |
| Passeriformes    | Turdidae        | *Turdus merula*          | altricial          | PT           | 93.77   | 29.67     | 35.43     | 28.82     | 98          | 93.92     | Wang et al. (2011) |
| Order         | Family   | Species             | Developmental mode | Flight style | $M$ (g) | $hu$ (mm) | $ul$ (mm) | $mn$ (mm) | $fprim$ (mm) | $ta$ (mm) | Source                |
|--------------|----------|---------------------|--------------------|--------------|---------|----------|----------|-----------|--------------|----------|-----------------------|
| Passeriformes| Turdidae | *Turdus philomelos* | altricial          | PT           | 67.75   | 26.83    | 30.95    | 29.72     | 92           | 87.50   | Wang et al. (2011)     |
| Passeriformes| Turdidae | *Turdus philomelos* | altricial          |              | 77.00   | 30.00    | 35.00    | 35.00     | 100.00       |          | Ne 177 NULES*          |
| Passeriformes| Turdidae | *Turdus pilaris*    | altricial          | PT           | 106.00  | 29.97    | 34.58    | 31.81     | 116          | 96.36   | Wang et al. (2011)     |
| Passeriformes| Turdidae | *Turdus torquatus*  | altricial          | PT           | 109.00  | 30.73    | 40.82    | 37.61     | 100          | 109.16  | Wang et al. (2011)     |
| Passeriformes| Turdidae | *Turdus viscivorus* | altricial          | PT           | 115.00  | 31.24    | 35.02    | 35.02     | 114          | 101.28  | Wang et al. (2011)     |
| Gruiformes   | Gruidae  | *Grus grus*         | precocial          | CF           | 5500.00 | 227.16   | 247.46   | 192.50    | 384          | 667.12  | Wang et al. (2011)     |
| Gruiformes   | Otididae | *Otis tarda*        | precocial          | CF           | 8100.00 | 196.46   | 215.42   | 177.16    | 582          | 589.04  | Wang et al. (2011)     |
| Gruiformes   | Rallidae | *Crex crex*         | precocial          | CF           | 155.50  | 48.88    | 43.51    | 46.73     | 126          | 139.12  | Wang et al. (2011)     |
| Gruiformes   | Rallidae | *Fulica atra*       | precocial          | CF           | 892.50  | 77.33    | 66.98    | 62.42     | 135          | 206.73  | Wang et al. (2011)     |
| Gruiformes   | Rallidae | *Gallinula chloropus* | precocial        | CF           | 302.50  | 50.68    | 41.64    | 36.85     | 116          | 129.17  | Wang et al. (2011)     |
| Gruiformes   | Rallidae | *Rallus aquaticus*  | precocial          | CF           | 120.00  | 40.24    | 32.12    | 32.37     | 94           | 104.73  | Wang et al. (2011)     |
| Gaviiformes  | Gaviidae | *Gavia immer*       | precocial          | CF           | 4134.00 | 191.68   | 153.05   | 99.74     | 250          | 444.47  | Wang et al. (2011)     |
| Gaviiformes  | Gaviidae | *Gavia stellata*    | precocial          | CF           | 1551.00 | 139.63   | 112.89   | 91.33     | 174          | 343.85  | Wang et al. (2011)     |
| Galliformes  | Phasianidae | *Alectoris rufa* | precocial          | CF           | 483.00  | 53.43    | 49.80    | 41.15     | 121          | 144.38  | Wang et al. (2011)     |
| Order         | Family     | Species              | Developmental mode | Flight style | M (g) | hu (mm) | ul (mm) | mn (mm) | fprim (mm) | ta (mm) | Source                 |
|--------------|------------|----------------------|--------------------|--------------|-------|--------|--------|--------|-----------|--------|------------------------|
| Galliformes  | Phasianidae| Coturnix coturnix    | precocial          | CF           | 96.50 | 35.76  | 29.94  | 23.63  | 80        | 89.33  | Wang et al. (2011)     |
| Galliformes  | Phasianidae| Lagopus lagopus      | precocial          | CF           | 558.50| 67.13  | 59.94  | 57.13  | 154       | 184.20 | Wang et al. (2011)     |
| Galliformes  | Phasianidae| Lagopus muta         | precocial          | CF           | 422.00| 60.83  | 54.10  | 38.03  | 181       | 152.96 | Wang et al. (2011)     |
| Galliformes  | Phasianidae| Meleagris gallopavo  | precocial          |              | 3000.00| 165.00 | 150.00 | 120.00 | 435.00    |        | NULES*                 |
| Galliformes  | Phasianidae| Pavo cristatus       | precocial          | CF           | 4187.50| 128.07 | 107.97 | 61.60  | 326       | 297.64 | Wang et al. (2011)     |
| Galliformes  | Phasianidae| Pavo cristatus       | precocial          |              | 4000.00| 134.00 | 120.00 | 100.00 | 354.00    |        | NULES*                 |
| Galliformes  | Phasianidae| Perdix perdix        | precocial          | CF           | 389.50| 51.92  | 45.78  | 48.37  | 127       | 146.07 | Wang et al. (2011)     |
| Galliformes  | Phasianidae| Tetrao tetrix       | precocial          | CF           | 1082.50| 82.86  | 78.86  | 63.89  | 208       | 225.61 | Wang et al. (2011)     |
| Galliformes  | Phasianidae| Tetrao urogallus    | precocial          | CF           | 2950.00| 118.24 | 113.12 | 85.95  | 263       | 317.31 | Wang et al. (2011)     |
| Falconiformes| Accipitridae| Accipiter gentilis  | intermediate       | FS           | 1024.50| 94.21  | 105.05 | 78.86  | 273       | 278.12 | Wang et al. (2011)     |
| Falconiformes| Accipitridae| Accipiter nisus     | intermediate       |              | 227.00| 60.00  | 68.50  | 61.00  | 189.50    |        | № 180 NULES*            |
| Falconiformes| Accipitridae| Accipiter nisus     | intermediate       | FS           | 237.50| 51.77  | 62.29  | 49.74  | 146       | 163.80 | Wang et al. (2011)     |
| Falconiformes| Accipitridae| Aegypius monachus   | intermediate       |              | 7000.00| 275.00 | 345.00 | 235.00 | 855.00    |        | № 627 NULES*            |
| Falconiformes| Accipitridae| Aquila chrysaetos   | intermediate       |              | 4600.00| 180.00 | 198.00 | 149.00 | 527.00    |        | NULES*                 |
| Falconiformes| Accipitridae| Aquila chrysaetos   | intermediate       | FS           | 4197.00| 184.56 | 214.78 | 95.47  | 405       | 494.81 | Wang et al. (2011)     |
| Order     | Family         | Species            | Developmental mode | Flight style | M (g) | hu (mm) | ul (mm) | mn (mm) | fprim (mm) | ta (mm) | Source                  |
|-----------|----------------|--------------------|--------------------|--------------|-------|---------|---------|---------|-------------|---------|-------------------------|
| Falconiformes | Accipitridae   | Buteo buteo       | intermediate        | FS           | 875.00| 106.88  | 127.15  | 94.35   | 253         | 328.38  | Wang et al. (2011)       |
| Falconiformes | Accipitridae   | Buteo lagopus     | intermediate        | FS           | 956.00| 112.92  | 131.31  | 97.73   | 247         | 341.96  | Wang et al. (2011)       |
| Falconiformes | Accipitridae   | Circus aeruginosus| intermediate        | FS           | 627.50| 104.11  | 126.34  | 100.43  | 253         | 330.88  | Wang et al. (2011)       |
| Falconiformes | Accipitridae   | Circus cyaneus    | intermediate        | FS           | 435.50| 92.34   | 104.42  | 79.37   | 230         | 276.13  | Wang et al. (2011)       |
| Falconiformes | Accipitridae   | Circus pygargus   | intermediate        | FS           | 315.50| 86.58   | 116.88  | 92.76   | 303         | 296.22  | Wang et al. (2011)       |
| Falconiformes | Accipitridae   | Gypaetus barbatus | intermediate        | FS           | 5680.00| 225.81  | 266.36  | 135.88  | 670         | 628.05  | Wang et al. (2011)       |
| Falconiformes | Accipitridae   | Gyps fulvus       | intermediate        | FS           | 7436.00| 237.85  | 292.02  | 161.55  | 576         | 691.42  | Wang et al. (2011)       |
| Falconiformes | Accipitridae   | Haliaeetus albicilla | intermediate    | FS           | 5500.00| 240.00  | 250.00  | 177.00  | 667.00      | Ne 243 NULES*       |
| Falconiformes | Accipitridae   | Haliaeetus albicilla | intermediate    | FS           | 4793.00| 220.24  | 248.99  | 186.20  | 381         | 655.43  | Wang et al. (2011)       |
| Falconiformes | Accipitridae   | Milvus migrans   | intermediate        | FS           | 950.00| 117.24  | 133.85  | 90.43   | 340         | 341.52  | Wang et al. (2011)       |
| Falconiformes | Accipitridae   | Milvus milvus    | intermediate        | FS           | 1080.00| 123.58  | 141.42  | 112.82  | 268         | 377.82  | Wang et al. (2011)       |
| Falconiformes | Accipitridae   | Neophron percnopterus | intermediate    | FS           | 2120.00| 143.45  | 161.65  | 75.95   | 401         | 381.05  | Wang et al. (2011)       |
| Falconiformes | Falconidae     | Falco columbarius | intermediate        | FG           | 190.50| 47.58   | 53.82   | 50.95   | 158         | 152.35  | Wang et al. (2011)       |
| Falconiformes | Falconidae     | Falco peregrinus  | intermediate        | FG           | 781.50| 87.26   | 102.32  | 92.39   | 280         | 281.97  | Wang et al. (2011)       |
| Order     | Family     | Species               | Developmental mode | Flight style | M (g) | hu (mm) | ul (mm) | mn (mm) | fprim (mm) | ta (mm) | Source               |
|-----------|------------|-----------------------|--------------------|--------------|-------|---------|---------|---------|------------|---------|----------------------|
| Falconiformes Falconidae | Falco subbuteo | intermediate | FG                  | 240.00       | 55.32 | 63.03   | 60.50   | 236     | 178.85     |         | Wang et al. (2011)   |
| Falconiformes Falconidae | Falco tinnunculus | intermediate | FG                  | 201.50       | 53.85 | 63.41   | 55.37   | 170     | 172.63     |         | Wang et al. (2011)   |
| Falconiformes Falconidae | Falco tinnunculus | intermediate | FG                  | 170.00       | 50.00 | 60.00   | 57.00   | 167     | 167.00     |         | № 331 NULES*         |
| Falconiformes Pandionidae | Pandion haliaetus | intermediate | FS                  | 1600.00      | 146.40| 184.99  | 124.70  | 319     | 456.09     |         | Wang et al. (2011)   |
| Cuculiformes Cuculidae | Cuculus canorus | altricial | PT                  | 113.00       | 39.74 | 44.04   | 45.81   | 201     | 129.59     |         | Wang et al. (2011)   |
| Coraciiformes Alcedinidae | Alcedo atthis | altricial | PT                  | 35.00        | 25.16 | 29.45   | 14.74   | 62      | 69.35      |         | Wang et al. (2011)   |
| Coraciiformes Coraciidae | Coracias garrulus | altricial | PT                  | 146.00       | 45.40 | 57.44   | 54.93   | 179     | 157.77     |         | Wang et al. (2011)   |
| Columbiformes Columbidae | Columba livia | intermediate | CF                  | 354.50       | 44.62 | 51.34   | 47.00   | 193     | 142.96     |         | Wang et al. (2011)   |
| Columbiformes Columbidae | Columba livia | intermediate | CF                  | 322.00       | 46.00 | 54.00   | 60.00   | 160     | 160.00     |         | NULES*               |
| Columbiformes Columbidae | Columba livia | intermediate | CF                  | 322.50       | 44.00 | 54.00   | 66.50   | 164     | 164.50     |         | NULES*               |
| Columbiformes Columbidae | Columba oenas | intermediate | CF                  | 291.00       | 46.80 | 51.03   | 48.40   | 193     | 146.23     |         | Wang et al. (2011)   |
| Columbiformes Columbidae | Columba palumbus | intermediate | CF                  | 490.00       | 54.90 | 59.02   | 26.21   | 208     | 140.13     |         | Wang et al. (2011)   |
| Columbiformes Columbidae | Streptopelia turtur | intermediate | CF                  | 132.00       | 36.92 | 41.14   | 37.78   | 149     | 115.84     |         | Wang et al. (2011)   |
| Ciconiiformes Ardeidae | Ardea cinerea | intermediate | CF                  | 1550.00      | 180.00| 205.00  | 159.00  | 544     | 492.28     |         | № 334 NULES*         |
| Ciconiiformes Ardeidae | Ardea cinerea | intermediate | CF                  | 1443.00      | 170.73| 200.77  | 120.78  | 284     | 492.28     |         | Wang et al. (2011)   |
| Order     | Family      | Species                | Developmental mode | Flight style | M (g) | hu (mm) | ul (mm) | mn (mm) | fprim (mm) | ta (mm) | Source                  |
|-----------|-------------|------------------------|--------------------|--------------|-------|---------|---------|---------|------------|---------|-------------------------|
| Ciconiiformes | Ardeidae   | *Ardea purpurea*       | intermediate       | CF           | 935.00| 138.42  | 159.15  | 76.59   | 258        | 374.16  | Wang et al. (2011)       |
| Ciconiiformes | Ardeidae   | *Botaurus stellaris*   | intermediate       | FS           | 916.50| 134.29  | 143.18  | 81.91   | 258        | 359.38  | Wang et al. (2011)       |
| Ciconiiformes | Ardeidae   | *Bubulcus ibis*        | intermediate       | FS           | 338.00| 94.00   | 106.88  | 50.15   | 190        | 251.03  | Wang et al. (2011)       |
| Ciconiiformes | Ardeidae   | *Egretta garzetta*     | intermediate       | CF           | 1100.00| 152.40  | 177.53  | 91.23   | 320        | 421.16  | Wang et al. (2011)       |
| Ciconiiformes | Ardeidae   | *Nycticorax nycticorax*| intermediate       | CF           | 883.00| 107.31  | 119.48  | 70.37   | 216        | 297.16  | Wang et al. (2011)       |
| Ciconiiformes | Ciconiidae | *Ciconia ciconia*      | intermediate       | FS           | 3473.00| 199.33  | 229.92  | 169.04  | 350        | 598.29  | Wang et al. (2011)       |
| Ciconiiformes | Ciconiidae | *Ciconia ciconia*      | intermediate       | FS           | 3000.00| 197.00  | 230.00  | 167.00  | 594.00     |         | Nr 236 NULES*            |
| Ciconiiformes | Ciconiidae | *Ciconia nigra*        | intermediate       | FS           | 3000.00| 196.00  | 217.00  | 107.33  | 359        | 520.33  | Wang et al. (2011)       |
| Ciconiiformes | Threskiornithidae | *Plegadis falcinellus* | intermediate       | FS           | 532.50| 93.30   | 101.30  | 54.50   | 205        | 249.10  | Wang et al. (2011)       |
| Charadriiformes | Alcidae   | *Alca torda*           | intermediate       | CF           | 710.00| 76.91   | 59.00   | 48.87   | 131        | 184.78  | Wang et al. (2011)       |
| Charadriiformes | Alcidae   | *Alle alle*            | intermediate       | CF           | 163.00| 43.56   | 35.17   | 28.54   | 92         | 107.27  | Wang et al. (2011)       |
| Charadriiformes | Alcidae   | *Cepphus grylle*       | intermediate       | CF           | 405.00| 60.18   | 50.46   | 34.20   | 150        | 144.84  | Wang et al. (2011)       |
| Charadriiformes | Alcidae   | *Fratercula arctica*   | intermediate       | CF           | 381.00| 63.26   | 50.77   | 42.78   | 114        | 156.81  | Wang et al. (2011)       |
| Charadriiformes | Alcidae   | *Uria aalge*           | intermediate       | CF           | 992.50| 87.25   | 63.13   | 58.89   | 130        | 209.27  | Wang et al. (2011)       |
| Order            | Family       | Species              | Developmental mode | Flight style | M (g) | hu (mm) | ul (mm) | mn (mm) | fprim (mm) | ta (mm) | Source          |
|------------------|--------------|----------------------|--------------------|--------------|-------|--------|--------|--------|-----------|--------|----------------|
| Charadriiformes  | Burhinidae   | Burhinus oedicnemus  | precocial          | CF           | 459.00| 80.26  | 90.34  | 74.88  | 230       | 245.48 | Wang et al. (2011) |
| Charadriiformes  | Charadriidae | Charadrius hiaticula | precocial          | CF           | 64.00 | 32.66  | 36.07  | 31.84  | 115       | 100.57 | Wang et al. (2011)  |
| Charadriiformes  | Charadriidae | Pluvialis apricaria  | precocial          | CF           | 214.00| 48.66  | 54.41  | 54.56  | 169       | 157.63 | Wang et al. (2011)  |
| Charadriiformes  | Charadriidae | Pluvialis squatarola | precocial          | CF           | 220.00| 52.50  | 54.78  | 54.60  | 156       | 161.88 | Wang et al. (2011)  |
| Charadriiformes  | Charadriidae | Vanellus vanellus    | precocial          | CF           | 218.50| 61.91  | 68.55  | 54.72  | 181       | 185.18 | Wang et al. (2011)  |
| Charadriiformes  | Haematopodidae| Haematopus ostralegus| precocial          | CF           | 526.00| 73.47  | 77.75  | 72.91  | 190       | 224.13 | Wang et al. (2011)  |
| Charadriiformes  | Laridae      | Larus argentatus     | intermediate       | CF           | 1135.00| 128.77 | 144.26 | 103.82 | 305       | 376.85 | Wang et al. (2011)  |
| Charadriiformes  | Laridae      | Larus canus          | intermediate       | CF           | 403.50| 83.05  | 91.64  | 84.48  | 282       | 259.17 | Wang et al. (2011)  |
| Charadriiformes  | Laridae      | Larus marinus        | intermediate       | CF           | 1658.50| 153.27 | 170.55 | 120.16 | 442       | 443.98 | Wang et al. (2011)  |
| Charadriiformes  | Laridae      | Larus ridibundus     | intermediate       | CF           | 284.00| 76.81  | 88.81  | 73.77  | 237       | 239.39 | Wang et al. (2011)  |
| Charadriiformes  | Laridae      | Rissa tridactyla     | intermediate       | CF           | 407.00| 85.60  | 94.60  | 64.48  | 238       | 244.68 | Wang et al. (2011)  |
| Charadriiformes  | Recurvirostridae | Recurvirostra avosetta | precocial          | CF           | 306.00| 73.48  | 77.27  | 76.55  | 190       | 227.30 | Wang et al. (2011)  |
| Charadriiformes  | Scolopacidae | Arenaria interpres   | precocial          | CF           | 115.00| 39.91  | 43.12  | 44.74  | 136       | 127.77 | Wang et al. (2011)  |
| Charadriiformes  | Scolopacidae | Calidris alpina      | precocial          | CF           | 47.75 | 28.07  | 29.36  | 36.39  | 105       | 93.82  | Wang et al. (2011)  |
| Order          | Family            | Species               | Developmental mode | Flight style | $M$ (g) | $hu$ (mm) | $ul$ (mm) | $mn$ (mm) | $fprim$ (mm) | $ta$ (mm) | Source                  |
|---------------|-------------------|-----------------------|--------------------|--------------|---------|-----------|-----------|-----------|---------------|-----------|-------------------------|
| Charadriiformes | Scolopacidae      | Calidris canutus      | precocial          | CF           | 137.00  | 43.02     | 47.36     | 52.04     | 123          | 142.42   | Wang et al. (2011)       |
| Charadriiformes | Scolopacidae      | Gallinago gallinago   | precocial          | CF           | 122.00  | 37.50     | 39.77     | 39.38     | 105          | 116.65   | Wang et al. (2011)       |
| Charadriiformes | Scolopacidae      | Limosa lapponica      | precocial          | CF           | 342.50  | 60.59     | 64.53     | 65.17     | 163          | 190.29   | Wang et al. (2011)       |
| Charadriiformes | Scolopacidae      | Limosa limosa         | precocial          | CF           | 291.00  | 62.46     | 67.19     | 38.21     | 180          | 167.86   | Wang et al. (2011)       |
| Charadriiformes | Scolopacidae      | Lymnocryptes minimus  | precocial          | CF           | 50.20   | 31.75     | 33.98     | 40.79     | 105          | 106.52   | Wang et al. (2011)       |
| Charadriiformes | Scolopacidae      | Numenius arquata      | precocial          | CF           | 805.50  | 96.01     | 104.00    | 61.04     | 240          | 261.05   | Wang et al. (2011)       |
| Charadriiformes | Scolopacidae      | Scolopax rusticola    | precocial          | CF           | 309.50  | 52.90     | 57.42     | 69.91     | 156          | 180.23   | Wang et al. (2011)       |
| Charadriiformes | Scolopacidae      | Tringa totanus        | precocial          | CF           | 129.00  | 44.60     | 49.41     | 52.07     | 125          | 146.08   | Wang et al. (2011)       |
| Charadriiformes | Stercorariidae    | Stercorarius parasiticus | intermediate     | CF           | 464.50  | 94.00     | 97.80     | 49.65     | 258          | 241.45   | Wang et al. (2011)       |
| Charadriiformes | Sternidae         | Sterna hirundo        | intermediate       | CF           | 135.00  | 56.00     | 68.50     | 71.20     | 195.70       | Nr11-55   | NULES*                  |
| Charadriiformes | Sternidae         | Sterna sandvicensis   | intermediate       | CF           | 208.00  | 69.00     | 82.50     | 41.20     | 278          | 192.70   | Wang et al. (2011)       |
| Caprimulgiformes | Caprimulgidae    | Caprimulgus europaeus | intermediate       | CF           | 67.00   | 37.74     | 48.51     | 53.31     | 167          | 139.56   | Wang et al. (2011)       |
| Apodiformes     | Apodidae          | Apus apus             | altricial          | FG           | 22.75   | 11.83     | 18.11     | 27.93     | 146          | 57.87    | Wang et al. (2011)       |
| Anseriformes    | Anatidae          | Aix galericulata      | precocial          | CF           | 570.00  | 70.10     | 58.00     | 45.60     | 191          | 173.70   | Wang et al. (2011)       |
| Order         | Family      | Species         | Developmental mode | Flight style | M (g) | hu (mm) | ul (mm) | mn (mm) | fprim (mm) | ta (mm) | Source                  |
|--------------|-------------|-----------------|--------------------|--------------|-------|--------|--------|--------|-----------|--------|-------------------------|
| Anseriformes | Anatidae    | Anas acuta      | precocial          | CF           | 1010.50 | 90.60  | 78.78  | 95.52  | 234       | 264.90 | Wang et al. (2011)      |
| Anseriformes | Anatidae    | Anas clypeata   | precocial          | CF           | 613.00  | 75.04  | 64.53  | 51.63  | 208       | 191.20 | Wang et al. (2011)      |
| Anseriformes | Anatidae    | Anas crecca     | precocial          | CF           | 341.00  | 59.63  | 47.90  | 50.91  | 156       | 158.44 | Wang et al. (2011)      |
| Anseriformes | Anatidae    | Anas penelope   | precocial          | CF           | 771.50  | 86.22  | 72.51  | 72.87  | 197       | 231.60 | Wang et al. (2011)      |
| Anseriformes | Anatidae    | Anas platyrhynchos | precocial        | CF           | 1082.00 | 89.75  | 74.25  | 63.84  | 204       | 227.84 | Wang et al. (2011)      |
| Anseriformes | Anatidae    | Anser anser     | precocial          | CF           | 3308.50 | 179.74 | 171.11 | 181.19 | 410       | 532.04 | Wang et al. (2011)      |
| Anseriformes | Anatidae    | Aythya ferina   | precocial          | CF           | 823.00  | 86.46  | 72.37  | 71.44  | 153       | 230.27 | Wang et al. (2011)      |
| Anseriformes | Anatidae    | Aythya fuligula | precocial          | CF           | 694.00  | 74.55  | 67.33  | 57.05  | 148       | 198.93 | Wang et al. (2011)      |
| Anseriformes | Anatidae    | Branta bernica  | precocial          | CF           | 1300.00 | 123.57 | 113.08 | 122.47 | 410       | 359.12 | Wang et al. (2011)      |
| Anseriformes | Anatidae    | Branta canadensis | precocial        | CF           | 2943.07 | 180.77 | 161.33 | 99.50  | 438       | 441.60 | Wang et al. (2011)      |
| Anseriformes | Anatidae    | Branta leucopsis | precocial        | CF           | 1687.00 | 132.53 | 120.55 | 99.72  | 358       | 352.80 | Wang et al. (2011)      |
| Anseriformes | Anatidae    | Bucephala clangula | precocial       | CF           | 900.00  | 69.80  | 59.08  | 55.70  | 205       | 184.58 | Wang et al. (2011)      |
| Anseriformes | Anatidae    | Cygnus cygnus   | precocial          | CF           | 9750.00 | 263.00 | 260.00 | 218.00 | 741.00    |        | № 969 NULES*            |
| Anseriformes | Anatidae    | Cygnus olor     | precocial          | CF           | 9250.00 | 285.00 | 250.00 | 235.00 | 770.00    |        | № 345 NULES*            |
| Order       | Family     | Species            | Developmental mode | Flight style | $M$ (g) | $hu$ (mm) | $ul$ (mm) | $mn$ (mm) | $fprim$ (mm) | $ta$ (mm) | Source                  |
|------------|------------|--------------------|--------------------|--------------|---------|-----------|-----------|-----------|---------------|-----------|-------------------------|
| Anseriformes | Anatidae   | *Cygnus olor*      | precocial          | CF           | 10735.00| 279.68    | 254.68    | 231.93    | 423           | 766.29    | Wang et al. (2011)      |
| Anseriformes | Anatidae   | *Mergus serrator*  | precocial          | CF           | 1021.50 | 89.03     | 72.07     | 55.30     | 176           | 216.40    | Wang et al. (2011)      |
| Anseriformes | Anatidae   | *Somateria mollissima* | precocial        | CF           | 2066.50 | 111.80    | 97.13     | 69.23     | 190           | 278.16    | Wang et al. (2011)      |
**Table S2: Body measurements of bird species**

Data on body mass, wing-span, wing-area was taken from Bruderer et al. (2010)

| Order         | Family     | Species                | Developmental mode | Flight style | M (g) | Wing-span (m) | Wing-area (m²) |
|---------------|------------|------------------------|--------------------|--------------|-------|---------------|----------------|
| Anseriformes  | Anatidae   | Anas acuta             | precocial          | CF           | 911   | 0.930         | 0.0918         |
| Anseriformes  | Anatidae   | Anas clypeata          | precocial          | CF           | 598   | 0.780         | 0.0750         |
| Anseriformes  | Anatidae   | Anas platyrhynchos     | precocial          | CF           | 1094  | 0.890         | 0.1054         |
| Anseriformes  | Anatidae   | Anas strepera          | precocial          | CF           | 740   | 0.900         | 0.1000         |
| Anseriformes  | Anatidae   | Aythya ferina          | precocial          | CF           | 1005  | 0.780         | 0.0660         |
| Anseriformes  | Anatidae   | Aythya fuligula        | precocial          | CF           | 806   | 0.750         | 0.0630         |
| Anseriformes  | Anatidae   | Cygnus olor            | precocial          | CF           | 8760  | 2.300         | 0.6504         |
| Anseriformes  | Anatidae   | Mergus merganser       | precocial          | CF           | 1479  | 0.960         | 0.0680         |
| Apodiformes   | Apodidae   | Apus affinis           | altricial          | FG           | 18    | 0.330         | 0.0100         |
| Apodiformes   | Apodidae   | Apus apus              | altricial          | FG           | 40    | 0.400         | 0.0150         |
| Apodiformes   | Apodidae   | Apus melba             | altricial          | FG           | 81    | 0.500         | 0.0271         |
| Apodiformes   | Apodidae   | Apus pallidus          | altricial          | FG           | 40    | 0.400         | 0.0150         |
| Caprimulgiformes | Caprimulgidae | Caprimulgus ruficollis | intermediate    | CF           | 69    | 0.670         | 0.0567         |
| Charadriiformes | Scolopacidae | Calidris alba         | precocial          | CF           | 50    | 0.350         | 0.0160         |
| Charadriiformes | Scolopacidae | Calidris alpina       | precocial          | CF           | 44    | 0.360         | 0.0160         |
| Charadriiformes | Charadriidae | Charadrius hiaticula   | precocial          | CF           | 53    | 0.400         | 0.0179         |
| Charadriiformes | Laridae     | Chlidonias leucopterus | intermediate    | CF           | 68    | 0.570         | 0.0545         |
| Charadriiformes | Laridae     | Chlidonias niger       | intermediate    | CF           | 65    | 0.600         | 0.0521         |
| Charadriiformes | Glareolidae | Cursorius cursor      | precocial          | CF           | 115   | 0.540         | 0.0407         |
| Order           | Family        | Species               | Developmental mode | Flight style | M (g) | Wing-span (m) | Wing-area (m²) |
|-----------------|---------------|-----------------------|--------------------|--------------|-------|---------------|----------------|
| Charadriiformes | Scolopacidae  | Gallinago gallinago   | precocial          | CF           | 122   | 0.460         | 0.0309         |
| Charadriiformes | Glareolidae   | Glareola nordmanni    | precocial          | CF           | 100   | 0.640         | 0.0540         |
| Charadriiformes | Glareolidae   | Glareola pratincola   | precocial          | CF           | 80    | 0.630         | 0.0503         |
| Charadriiformes | Haematopodidae| Haematopus ostralegus | precocial          | CF           | 403   | 0.850         | 0.0891         |
| Charadriiformes | Recurvirostridae | Himantopus himantopus | precocial          | CF           | 160   | 0.750         | 0.0600         |
| Charadriiformes | Charadriidae  | Hoplopterus spinosus  | precocial          | CF           | 150   | 0.700         | 0.0700         |
| Charadriiformes | Laridae       | Larus argentatus      | intermediate       | CF           | 705   | 1.350         | 0.2001         |
| Charadriiformes | Laridae       | Larus cachinnans      | intermediate       | CF           | 1000  | 1.430         | 0.2496         |
| Charadriiformes | Laridae       | Larus canus           | intermediate       | CF           | 276   | 1.100         | 0.1380         |
| Charadriiformes | Laridae       | Larus fuscus          | intermediate       | CF           | 797   | 1.340         | 0.1895         |
| Charadriiformes | Laridae       | Larus minutus         | intermediate       | CF           | 120   | 0.650         | 0.0800         |
| Charadriiformes | Laridae       | Larus ridibundus      | intermediate       | CF           | 275   | 0.960         | 0.0983         |
| Charadriiformes | Scolopacidae  | Limosa lapponica      | precocial          | CF           | 271   | 0.720         | 0.0550         |
| Charadriiformes | Scolopacidae  | Numenius arquata      | precocial          | CF           | 726   | 1.040         | 0.1189         |
| Charadriiformes | Scolopacidae  | Numenius phaeopus     | precocial          | CF           | 373   | 0.820         | 0.0730         |
| Charadriiformes | Scolopacidae  | Philomachus pugnax F  | precocial          | CF           | 120   | 0.450         | 0.0300         |
| Charadriiformes | Scolopacidae  | Philomachus pugnax M  | precocial          | CF           | 190   | 0.570         | 0.0450         |
| Charadriiformes | Charadriidae  | Pluvialis apricaria   | precocial          | CF           | 190   | 0.560         | 0.0500         |
| Charadriiformes | Charadriidae  | Pluvialis squatarola  | precocial          | CF           | 210   | 0.600         | 0.0550         |
| Charadriiformes | Scolopacidae  | Tringa nebularia      | precocial          | CF           | 171   | 0.600         | 0.0369         |
| Charadriiformes | Scolopacidae  | Tringa ochropus       | precocial          | CF           | 87    | 0.450         | 0.0289         |
| Charadriiformes | Charadriidae  | Vanellus vanellus     | precocial          | CF           | 236   | 0.730         | 0.0820         |
| Ciconiiformes   | Ardeidae      | Ardea cinerea         | intermediate       | CF           | 1210  | 1.600         | 0.3580         |
| Ciconiiformes   | Ardeidae      | Ardea purpurea        | intermediate       | CF           | 1109  | 1.370         | 0.2488         |
| Order          | Family    | Species                  | Developmental mode | Flight style | M (g) | Wing-span (m) | Wing-area (m²) |
|---------------|-----------|--------------------------|--------------------|--------------|-------|---------------|----------------|
| Ciconiiformes | Ciconiidae| *Ciconia ciconia*        | intermediate       | FS           | 3600  | 2.160         | 0.6508         |
| Ciconiiformes | Ciconiidae| *Ciconia nigra*          | intermediate       | FS           | 3000  | 1.850         | 0.5000         |
| Ciconiiformes | Ardeidae  | *Egretta garzetta*       | intermediate       | CF           | 500   | 0.920         | 0.1150         |
| Ciconiiformes | Ardeidae  | *Nycticorax nycticorax*  | intermediate       | CF           | 656   | 1.100         | 0.1600         |
| Ciconiiformes | Threskiornithidae | *Platalea leucorodia* | intermediate       | FS           | 1501  | 1.260         | 0.2341         |
| Columbiformes | Columbidae| *Columba livia*          | intermediate       | CF           | 350   | 0.670         | 0.0649         |
| Columbiformes | Columbidae| *Columba palumbus*       | intermediate       | CF           | 500   | 0.750         | 0.0904         |
| Columbiformes | Pteroclididae | *Pterocles coronatus*  | precocial          | CF           | 410   | 0.720         | 0.0721         |
| Columbiformes | Columbidae| *Streptopelia turtur*    | intermediate       | CF           | 132   | 0.520         | 0.0400         |
| Coraciiformes | Meropidae | *Merops apiaster*        | altricial          | CF           | 58    | 0.470         | 0.0273         |
| Falconiformes | Accipitridae | *Accipiter brevipes*    | intermediate       | FS           | 220   | 0.700         | 0.0739         |
| Falconiformes | Accipitridae| *Accipiter gentilis F*  | intermediate       | FS           | 1200  | 1.200         | 0.2400         |
| Falconiformes | Accipitridae| *Accipiter gentilis M*  | intermediate       | FS           | 717   | 1.030         | 0.1643         |
| Falconiformes | Accipitridae| *Accipiter nisus F*     | intermediate       | FS           | 295   | 0.760         | 0.0912         |
| Falconiformes | Accipitridae| *Accipiter nisus M*     | intermediate       | FS           | 115   | 0.620         | 0.0638         |
| Falconiformes | Accipitridae| *Aquila pomarina*       | intermediate       | FS           | 2015  | 1.800         | 0.5133         |
| Falconiformes | Accipitridae| *Buteo buteo buteo*    | intermediate       | FS           | 964   | 1.290         | 0.2540         |
| Falconiformes | Accipitridae| *Buteo buteo vulpinus*  | intermediate       | FS           | 580   | 1.190         | 0.2070         |
| Falconiformes | Accipitridae| *Circus aeruginosus*    | intermediate       | FS           | 651   | 1.330         | 0.2248         |
| Falconiformes | Accipitridae| *Circus cyaneus*        | intermediate       | FS           | 430   | 1.100         | 0.1539         |
| Falconiformes | Accipitridae| *Circus macrourus*      | intermediate       | FS           | 358   | 1.060         | 0.1553         |
| Falconiformes | Accipitridae| *Circus pygargus*       | intermediate       | FS           | 250   | 1.040         | 0.1290         |
| Falconiformes | Falconidae | *Falco biarmicus*       | intermediate       | FG           | 595   | 1.056         | 0.1410         |
| Order          | Family       | Species                          | Developmental mode | Flight style | M (g) | Wing-span (m) | Wing-area (m²) |
|---------------|--------------|----------------------------------|--------------------|--------------|-------|---------------|----------------|
| Falconiformes | Falconidae   | *Falco columbarius* M            | intermediate       | FG           | 159   | 0.590         | 0.0493         |
| Falconiformes | Falconidae   | *Falco concolor*                 | intermediate       | FG           | 250   | 0.900         | 0.1196         |
| Falconiformes | Falconidae   | *Falco eleonora*                 | intermediate       | FG           | 360   | 1.000         | 0.1500         |
| Falconiformes | Falconidae   | *Falco naumanni*                 | intermediate       | FG           | 148   | 0.650         | 0.0611         |
| Falconiformes | Falconidae   | *Falco pelegrinoides* M          | intermediate       | FG           | 411   | 0.770         | 0.0723         |
| Falconiformes | Falconidae   | *Falco peregrinus* F             | intermediate       | FG           | 998   | 1.100         | 0.1478         |
| Falconiformes | Falconidae   | *Falco peregrinus* M             | intermediate       | FG           | 570   | 0.960         | 0.1098         |
| Falconiformes | Falconidae   | *Falco subbuteo*                 | intermediate       | FG           | 184   | 0.750         | 0.0653         |
| Falconiformes | Falconidae   | *Falco tinnunculus*              | intermediate       | FG           | 206   | 0.750         | 0.0777         |
| Falconiformes | Falconidae   | *Falco vespertinus*              | intermediate       | FG           | 165   | 0.720         | 0.0728         |
| Falconiformes | Accipitridae | *Haliaeetus vocifer*             | intermediate       | FS           | 3000  | 1.900         | 0.5000         |
| Falconiformes | Accipitridae | *Hieraaetus fasciatus*           | intermediate       | FS           | 2049  | 1.740         | 0.3792         |
| Falconiformes | Accipitridae | *Hieraaetus pennatus*            | intermediate       | FS           | 595   | 1.160         | 0.2004         |
| Falconiformes | Accipitridae | *Micronisus gaber*               | intermediate       | FS           | 150   | 0.650         | 0.0650         |
| Falconiformes | Accipitridae | *Milvus migrans*                 | intermediate       | FS           | 858   | 1.400         | 0.2744         |
| Falconiformes | Accipitridae | *Milvus milvus*                  | intermediate       | FS           | 851   | 1.500         | 0.3040         |
| Falconiformes | Accipitridae | *Neophron percnopterus*          | intermediate       | FS           | 1849  | 1.650         | 0.3500         |
| Falconiformes | Pandionidae  | *Pandion haliaetus*              | intermediate       | FS           | 2000  | 1.700         | 0.3196         |
| Falconiformes | Accipitridae | *Pernis apivorus*                | intermediate       | FS           | 800   | 1.270         | 0.2600         |
| Galliformes   | Phasianidae  | *Coturnix coturnix*              | precocial          | CF           | 96    | 0.370         | 0.0200         |
| Gruiformes    | Rallidae     | *Fulica atra*                    | precocial          | CF           | 744   | 0.750         | 0.0700         |
| Passeriformes | Acrocephalidae | *Acrocephalus arundinaceus*     | altricial          | PT           | 31    | 0.270         | 0.0117         |
| Passeriformes | Acrocephalidae | *Acrocephalus palustris*         | altricial          | PT           | 13    | 0.200         | 0.0072         |
| Passeriformes | Acrocephalidae | *Acrocephalus scirpaceus*        | altricial          | PT           | 10    | 0.200         | 0.0074         |
| Order         | Family      | Species                  | Developmental mode | Flight style | M (g) | Wing-span (m) | Wing-area (m²) |
|--------------|-------------|--------------------------|--------------------|--------------|-------|---------------|----------------|
| Passeriformes| Alaudidae   | *Alauda arvensis*        | altricial          | PT           | 31    | 0.360         | 0.0233         |
| Passeriformes| Motacillidae| *Anthus pratensis*       | altricial          | PT           | 20    | 0.270         | 0.0143         |
| Passeriformes| Motacillidae| *Anthus spinolleta*      | altricial          | PT           | 26    | 0.280         | 0.0151         |
| Passeriformes| Motacillidae| *Anthus trivialis*       | altricial          | PT           | 22    | 0.280         | 0.0126         |
| Passeriformes| Fringillidae| *Carduelis cannabina*    | altricial          | PT           | 18    | 0.240         | 0.0093         |
| Passeriformes| Fringillidae| *Carduelis carduelis*    | altricial          | PT           | 18    | 0.240         | 0.0099         |
| Passeriformes| Fringillidae| *Carduelis chloris*      | altricial          | PT           | 29    | 0.270         | 0.0112         |
| Passeriformes| Fringillidae| *Carduelis spinus*       | altricial          | PT           | 11    | 0.210         | 0.0079         |
| Passeriformes| Corvidae    | *Corvus corax*           | altricial          | CF           | 945   | 1.140         | 0.2472         |
| Passeriformes| Corvidae    | *Corvus corone*          | altricial          | CF           | 552   | 0.930         | 0.1470         |
| Passeriformes| Corvidae    | *Corvus frugilegus*      | altricial          | CF           | 454   | 0.930         | 0.1373         |
| Passeriformes| Corvidae    | *Corvus monedula*        | altricial          | CF           | 181   | 0.600         | 0.0618         |
| Passeriformes| Corvidae    | *Corvus ruficolis*       | altricial          | CF           | 720   | 1.100         | 0.1944         |
| Passeriformes| Hirundinidae| *Delichon urbica*        | altricial          | FG           | 18    | 0.280         | 0.0107         |
| Passeriformes| Emberizidae | *Emberiza hortulana*     | altricial          | PT           | 22    | 0.260         | 0.0138         |
| Passeriformes| Muscicapidae| *Erithacus rubecula*     | altricial          | PT           | 15    | 0.220         | 0.0101         |
| Passeriformes| Muscicapidae| *Ficedula hypoleuca*     | altricial          | PT           | 13    | 0.240         | 0.0091         |
| Passeriformes| Fringillidae| *Fringilla coelebs*      | altricial          | PT           | 23    | 0.260         | 0.0130         |
| Passeriformes| Fringillidae| *Fringilla montifringilla*| altricial          | PT           | 23    | 0.270         | 0.0125         |
| Passeriformes| Alaudidae   | *Galerida cristata*      | altricial          | PT           | 45    | 0.340         | 0.0200         |
| Passeriformes| Corvidae    | *Garrulus glandarius*    | altricial          | CF           | 150   | 0.550         | 0.0662         |
| Passeriformes| Acrocephalidae| *Hippolais icterina*  | altricial          | PT           | 14    | 0.220         | 0.0081         |
| Passeriformes| Sylviidae   | *Hippolais pallida*      | altricial          | PT           | 12    | 0.200         | 0.0083         |
| Passeriformes| Sylviidae   | *Hippolais polyglotta*   | altricial          | PT           | 11    | 0.200         | 0.0083         |
| Order       | Family          | Species             | Developmental mode | Flight style | M (g) | Wing-span (m) | Wing-area (m²) |
|------------|-----------------|---------------------|--------------------|--------------|-------|---------------|----------------|
| Passeriformes | Hirundinidae    | Hirundo daurica     | altricial          | FG           | 22    | 0.330         | 0.0154         |
| Passeriformes | Hirundinidae    | Hirundo rustica     | altricial          | FG           | 17    | 0.320         | 0.0140         |
| Passeriformes | Laniidae        | Lanius collurio     | altricial          | PT           | 30    | 0.300         | 0.0145         |
| Passeriformes | Sylviidae       | Locustella naevia   | altricial          | PT           | 13    | 0.190         | 0.0070         |
| Passeriformes | Alaudidae       | Lullula arborea     | altricial          | PT           | 27    | 0.290         | 0.0164         |
| Passeriformes | Muscicapidae    | Luscinia megarhynchos | altricial      | PT           | 20    | 0.250         | 0.0116         |
| Passeriformes | Motacillidae    | Motacilla alba      | altricial          | PT           | 20    | 0.270         | 0.0129         |
| Passeriformes | Motacillidae    | Motacilla cinerea   | altricial          | PT           | 17    | 0.260         | 0.0110         |
| Passeriformes | Motacillidae    | Motacilla flava     | altricial          | PT           | 17    | 0.260         | 0.0103         |
| Passeriformes | Muscicapidae    | Muscicapa striata   | altricial          | PT           | 15    | 0.240         | 0.0110         |
| Passeriformes | Corvidae        | Nucifraga caryocatactes | altricial     | CF           | 192   | 0.650         | 0.0790         |
| Passeriformes | Turdidae        | Oenanthe oenanthe   | altricial          | PT           | 25    | 0.310         | 0.0157         |
| Passeriformes | Paridae         | Parus ater          | altricial          | PT           | 9     | 0.190         | 0.0061         |
| Passeriformes | Muscicapidae    | Phoenicurus ochruros | altricial      | PT           | 15    | 0.250         | 0.0106         |
| Passeriformes | Muscicapidae    | Phoenicurus phoenicurus | altricial   | PT           | 15    | 0.230         | 0.0106         |
| Passeriformes | Phylloscopidae  | Phylloscopus trochilus | altricial     | PT           | 8     | 0.190         | 0.0071         |
| Passeriformes | Corvidae        | Pica pica           | altricial          | CF           | 227   | 0.610         | 0.0595         |
| Passeriformes | Prunellidae     | Prunella modularis  | altricial          | PT           | 17    | 0.210         | 0.0090         |
| Passeriformes | Hirundinidae    | Ptoxoprogne rupestris | altricial    | FG           | 24    | 0.330         | 0.0113         |
| Passeriformes | Regulidae       | Regulus ignicapillus | altricial     | PT           | 6     | 0.150         | 0.0050         |
| Passeriformes | Regulidae       | Regulus regulus     | altricial          | PT           | 5     | 0.160         | 0.0053         |
| Passeriformes | Hirundinidae    | Riparia riparia     | altricial          | FG           | 14    | 0.280         | 0.0096         |
| Passeriformes | Muscicapidae    | Saxicola rubetra    | altricial          | PT           | 16    | 0.240         | 0.0095         |
| Passeriformes | Fringillidae    | Serinus serinus     | altricial          | PT           | 11    | 0.220         | 0.0076         |
| Order                | Family      | Species                | Developmental mode | Fflight style | M (g) | Wing-span (m) | Wing-area (m²) |
|----------------------|-------------|------------------------|--------------------|--------------|--------|---------------|----------------|
| Passeriformes        | Sturnidae   | Sturnus vulgaris       | altricial          | PT           | 85     | 0.380         | 0.0230         |
| Passeriformes        | Sylviidae   | Sylvia atricapilla     | altricial          | PT           | 21     | 0.230         | 0.0098         |
| Passeriformes        | Sylviidae   | Sylvia borin           | altricial          | PT           | 17     | 0.230         | 0.0095         |
| Passeriformes        | Sylviidae   | Sylvia communis        | altricial          | PT           | 15     | 0.210         | 0.0087         |
| Passeriformes        | Sylviidae   | Sylvia curruca         | altricial          | PT           | 12     | 0.200         | 0.0073         |
| Passeriformes        | Sylviidae   | Sylvia hortensis       | altricial          | PT           | 21     | 0.240         | 0.0112         |
| Passeriformes        | Turdidae    | Turdus merula          | altricial          | PT           | 98     | 0.390         | 0.0297         |
| Passeriformes        | Turdidae    | Turdus phylomelos      | altricial          | PT           | 72     | 0.360         | 0.0226         |
| Passeriformes        | Turdidae    | Turdus pilaris         | altricial          | PT           | 93     | 0.430         | 0.0335         |
| Passeriformes        | Turdidae    | Turdus torquatus       | altricial          | PT           | 105    | 0.440         | 0.0330         |
| Passeriformes        | Turdidae    | Turdus viscivorus      | altricial          | PT           | 135    | 0.470         | 0.0358         |
| Pelecaniformes       | Pelecanidae | Pelecanus onocrotalus  | intermediate       | FS           | 7300   | 2.860         | 0.9340         |
| Pelecaniformes       | Phalacrocoracidae | Phalacrocorax carbo | intermediate       | CF           | 2556   | 1.350         | 0.2243         |
| Phoenicopteriformes  | Phoenicopteridae | Phoenicopterus ruber | intermediate       | CF           | 3000   | 1.530         | 0.2715         |
| Piciformes           | Picidae     | Jynx torquilla         | altricial          | PT           | 30     | 0.290         | 0.0150         |
| Podicipediformes     | Podicipedidae | Podiceps cristatus    | precocial          | CF           | 1000   | 0.810         | 0.0855         |
| Strigiformes         | Strigidae   | Asio flammeus          | intermediate       | CF           | 350    | 1.030         | 0.1343         |
| Strigiformes         | Strigidae   | Asio otus              | intermediate       | CF           | 280    | 0.940         | 0.1300         |
| Upupiformes          | Upupidae    | Upupa epops            | altricial          | CF           | 70     | 0.440         | 0.0422         |
Table S3: Scores of the phylogenetic discriminant function analyses

NA – missing values.
Wing-span dataset includes body mass (M), wing-span length, and wing-area.
Wing Elements dataset includes body mass (M), length of humerus, ulna, manus, and primary feather.

| Species               | Developmental mode | Discrimination by developmental mode | Flight style | Discrimination by flight style |
|-----------------------|--------------------|--------------------------------------|--------------|-------------------------------|
|                       |                    | Wingspan Dataset analysis           |              | Wingspan Dataset analysis     |
|                       |                    | pFDA Axis 1 | pFDA Axis 2 | pFDA Axis 1 | pFDA Axis 2 | pFDA Axis 1 | pFDA Axis 2 |
| Accipiter brevipes    | intermediate       | -1.203     | -0.016     | NA          | NA          | FS         | 0.910     | 0.117    | -1.103 | NA          | NA          |
| Accipiter gentilis    | intermediate       | -0.671     | 1.241      | -.095       | 1.261       | FS         | 0.580     | -2.045   | -0.850 | 0.684       | 0.590       | 0.809      |
| Accipiter nisus       | intermediate       | -0.927     | -0.210     | -0.927      | 1.140       | FS         | 1.117     | -0.273   | -0.863 | 0.273       | -1.000      | -0.357     |
| Acrocephalus arundinaceus | altricial | -1.158 | 0.974     | NA          | NA          | PT         | -0.025    | -0.025   | -1.148 | NA          | NA          | NA         |
| Acrocephalus palustris | altricial         | -1.171     | -0.137     | NA          | NA          | PT         | 0.890     | 0.240    | -0.924 | NA          | NA          | NA         |
| Acrocephalus schoenobaenus | altricial | NA         | NA         | 0.044       | 1.140       | PT         | NA        | NA       | NA      | 0.724       | -0.671      | -0.905     |
| Acrocephalus scirpaceus | altricial      | -0.318     | -0.557     | -1.675      | -0.333      | PT         | 0.506     | 0.512    | -0.432 | 1.533       | -0.900      | 0.809      |
| Aegithalos caudatus   | altricial         | NA         | NA         | -0.857      | 0.920       | PT         | NA        | NA       | NA      | 0.391       | -1.611      | 0.029      |
| Aix galericulata      | precocial         | NA         | NA         | 0.365       | 0.875       | CF         | NA        | NA       | NA      | 0.001       | 0.067       | -1.312     |
| Alauda arvensis       | altricial         | 1.410      | -0.041     | 1.234       | -0.394      | PT         | -0.953    | 0.011    | 0.317  | -0.713      | 0.221       | -0.094     |
| Alca torda            | intermediate      | NA         | NA         | 1.423       | 2.474       | CF         | NA        | NA       | NA      | -1.538      | -0.316      | -2.461     |
| Alcedo atthis         | altricial         | NA         | NA         | -0.340      | 0.294       | PT         | NA        | NA       | NA      | -0.820      | -1.838      | 1.086      |
| Aleatoris rufa        | precocial         | NA         | NA         | -0.243      | 1.301       | CF         | NA        | NA       | NA      | 0.232       | -0.354      | -0.593     |
| Alle alle             | intermediate      | NA         | NA         | -0.434      | 2.191       | CF         | NA        | NA       | NA      | -0.937      | -1.480      | -2.103     |
| Anas acuta            | precocial         | -0.420     | 1.409      | 0.895       | 0.584       | CF         | -1.054    | 0.301    | -1.620 | 0.562       | 0.950       | -1.789     |
| Anas clypeata         | precocial         | -0.429     | 0.758      | 0.242       | -0.071      | CF         | -0.036    | -0.359   | -1.389 | 0.124       | 0.325       | -0.836     |
| Anas crecca           | precocial         | NA         | NA         | 0.251       | 2.155       | CF         | NA        | NA       | NA      | -0.048      | -0.387      | -2.302     |
| Anas penelope         | precocial         | NA         | NA         | 1.253       | 0.642       | CF         | NA        | NA       | NA      | -0.368      | 0.394       | -1.460     |
| Anas platyrhynchos    | precocial         | -0.644     | 1.384      | 0.815       | 0.851       | CF         | 0.390     | -1.850   | -1.428 | -0.308      | 0.389       | -1.134     |
| Species           | Developmental mode | Discrimination by developmental mode | Flight style | Discrimination by flight style |
|------------------|--------------------|--------------------------------------|--------------|--------------------------------|
|                  |                    | Wingspan Dataset analysis             |              | Wing Elements Dataset analysis |
|                  |                    | pFDA Axis 1  | pFDA Axis 2 | pFDA Axis 1 | pFDA Axis 2 | pFDA Axis 1 | pFDA Axis 2 | pFDA Axis 1 | pFDA Axis 2 | pFDA Axis 1 | pFDA Axis 2 | pFDA Axis 1 | pFDA Axis 2 | pFDA Axis 3 |
| Anas strepera    | precocial          | 0.499     | 0.851     | NA         | NA         | CF         | -0.724     | -0.512     | -0.925     | NA         | NA         | NA         |
| Anser anser      | precocial          | NA        | NA        | 1.394     | -0.224     | CF         | NA         | NA         | NA         | 0.078     | 2.086     | -0.651     |
| Anthus pratensis | altricial          | 0.333     | -0.254    | 0.329     | -0.394     | PT         | 0.310      | -0.456     | -0.071     | -0.070     | -0.085     | 0.137      |
| Anthus spinolleta| altricial          | -0.208    | 0.162     | NA        | NA         | PT         | 0.491      | -0.764     | -0.398     | NA         | NA         | NA         |
| Anthus trivialis | altricial          | -0.307    | 0.176     | NA        | NA         | PT         | -0.321     | 0.732      | -0.655     | NA         | NA         | NA         |
| Apus affinis     | altricial          | -0.690    | -0.355    | NA        | NA         | FG         | -0.611     | 2.688      | -1.419     | NA         | NA         | NA         |
| Apus apus        | altricial          | -1.055    | 0.594     | -3.950    | 1.929      | FG         | -0.483     | 1.370      | -1.653     | 7.056      | -0.330     | -0.729     |
| Apus pallidus    | altricial          | -1.067    | 0.564     | NA        | NA         | FG         | -0.496     | 1.461      | -1.676     | NA         | NA         | NA         |
| Aquila chrysaetos| intermediate       | NA        | NA        | 0.986     | 0.101      | NA         | NA         | NA         | NA         | NA         | NA         | NA         |
| Aquila pomarina  | intermediate       | 1.625     | 1.540     | NA        | NA         | FS         | -1.342     | -2.112     | 0.168      | NA         | NA         | NA         |
| Ardea cinerea    | intermediate       | 2.070     | 0.946     | 1.931     | -0.700     | CF         | -1.846     | -0.793     | 0.207      | -1.167     | 1.364      | 0.266      |
| Ardea purpurea   | intermediate       | 0.513     | 1.138     | 0.312     | -0.391     | CF         | -1.043     | -0.515     | -0.638     | -0.661     | 0.763      | 1.039      |
| Arenaria interpres| precocial         | NA        | NA        | -0.090    | 0.533      | CF         | NA         | NA         | NA         | 0.757     | -0.014     | -0.791     |
| Asio flammeus    | intermediate       | 0.974     | 1.132     | 0.866     | -0.045     | CF         | -1.758     | 0.173      | -0.677     | 0.027      | 1.029      | -0.453     |
| Asio otus        | intermediate       | 1.238     | 0.692     | 0.792     | -0.653     | CF         | -1.087     | -0.592     | -0.335     | -0.273     | 0.863      | 0.068      |
| Athene noctua    | intermediate       | NA        | NA        | -0.495    | -0.247     | CF         | NA         | NA         | NA         | -0.131     | -0.613     | 1.435      |
| Aythya ferina    | precocial          | -2.326    | 1.761     | 1.287     | 1.702      | CF         | 0.469      | -0.477     | -2.552     | -0.807     | -0.220     | -1.135     |
| Aythya fuligula  | precocial          | -1.886    | 1.381     | -0.947    | 0.354      | CF         | 0.434      | -0.349     | -2.259     | -0.120     | -0.491     | 0.058      |
| Bombus terra      | altricial          | NA        | NA        | -0.448    | 0.061      | PT         | NA         | NA         | NA         | 0.963      | 0.218      | 0.503      |
| Botaurus stellaris| intermediate      | NA        | NA        | 1.221     | -0.105     | FS         | NA         | NA         | NA         | -1.009     | 0.924      | -0.062     |
| Branta bernicla  | precocial          | NA        | NA        | 0.583     | 0.610      | CF         | NA         | NA         | NA         | 0.979      | 1.865      | -1.752     |
| Branta canadensis| precocial          | NA        | NA        | 2.483     | -1.647     | CF         | NA         | NA         | NA         | -1.029     | 1.947      | 0.082      |
| Branta leucopsis | precocial          | NA        | NA        | 0.317     | 0.469      | CF         | NA         | NA         | NA         | 0.076      | 1.383      | -0.702     |
| Bubo bubo        | intermediate       | NA        | NA        | 0.761     | -0.016     | CF         | NA         | NA         | NA         | 0.147      | 1.912      | 0.253      |
| Bubo scandiaca   | intermediate       | NA        | NA        | 1.803     | -0.248     | CF         | NA         | NA         | NA         | -0.954     | 1.710      | 0.076      |
| Bubulcus ibis    | intermediate       | NA        | NA        | 0.184     | -0.489     | FS         | NA         | NA         | NA         | -0.968     | -0.098     | 0.897      |
| Species                      | Development mode | Discrimination by developmental mode | Flight style | Discrimination by flight style |
|------------------------------|------------------|---------------------------------------|--------------|---------------------------------|
|                              | pFDA Axis 1      | pFDA Axis 2                           | pFDA Axis 1  | pFDA Axis 2                      | pFDA Axis 1 | pFDA Axis 2 | pFDA Axis 3 | pFDA Axis 1 | pFDA Axis 2 | pFDA Axis 3 |
| *Bucephala clangula*         | precocial        | -1.004                                | 2.117        | CF                              | NA          | NA          | NA          | 1.284       | 0.267       | -1.661      |
| *Burhinus oedicnemus*        | precocial        | 0.869                                 | -0.219       | CF                              | NA          | NA          | NA          | 0.134       | 1.136       | -0.072      |
| *Buteo buteo*                | intermediate     | 0.553                                 | 0.770        | FS                              | -0.565      | -0.836      | -0.319      | -0.158      | 0.475       | 0.181       |
| *Buteo lagopus*              | intermediate     | NA                                    | 0.516        | FS                              | NA          | NA          | NA          | -0.390      | 0.436       | 0.029       |
| *Calidris alba*              | precocial        | -1.560                                | -0.187       | NA                              | 0.968       | 0.727       | -1.338      | NA          | NA          | NA          |
| *Calidris alpina*            | precocial        | -1.086                                | -0.331       | -0.335                          | 1.204       | CF          | NA          | NA          | NA          | NA          |
| *Calidris canutus*           | precocial        | NA                                    | NA           | NA                              | 0.071       | 0.410       | CF          | NA          | NA          | NA          |
| *Caprimulgus europaeus*      | intermediate     | 1.643                                 | 0.142        | NA                              | NA          | NA          | CF          | -1.856      | 1.159       | -0.470      |
| *Carduelis cannabina*        | altricial        | -0.865                                | 0.173        | 0.251                           | -0.222      | PT          | 0.253       | 0.443       | -0.875      | -1.395      |
| *Carduelis carduelis*        | altricial        | -0.620                                | 0.044        | -0.889                          | -0.673      | PT          | 0.452       | 0.004       | -0.664      | 0.821       |
| *Carduelis chloris*          | altricial        | -1.267                                | 0.758        | -0.176                          | -0.189      | PT          | 0.148       | 0.173       | -1.182      | 0.273       |
| *Carduelis spinus*           | altricial        | -0.349                                | -0.592       | -1.049                          | 1.170       | PT          | 0.847       | 0.370       | -0.423      | 1.638       |
| *Cephus grylle*              | intermediate     | NA                                    | NA           | -0.050                          | 1.564       | CF          | NA          | NA          | NA          | -0.303      |
| *Charadrius hiaticula*       | precocial        | -1.678                                | -0.002       | -0.397                          | 0.450       | CF          | 0.243       | 1.857       | -1.725      | 0.464       |
| *Charadrius leucopaterus*    | intermediate     | 0.740                                 | -0.709       | NA                              | NA          | NA          | CF          | -0.520      | 0.105       | NA          |
| *Charadrius niger*           | intermediate     | 0.902                                 | -0.601       | NA                              | NA          | NA          | CF          | -0.499      | 0.827       | -0.027      |
| *Ciconia ciconia*            | intermediate     | 1.779                                 | 1.770        | 0.993                           | -0.261      | FS          | -1.999      | -1.466      | -0.144      | -0.251      |
| *Ciconia nigra*              | intermediate     | 0.955                                 | 1.671        | 1.478                           | -0.890      | FS          | -1.173      | -1.684      | -0.490      | -1.083      |
| *Cincus cinclus*             | altricial        | NA                                    | NA           | -0.027                          | 1.377       | PT          | NA          | NA          | NA          | 0.438      |
| *Circus aeruginosus*         | intermediate     | 1.086                                 | 0.930        | 0.547                           | 0.158       | FS          | -1.605      | -0.006      | -0.180      | -0.178      |
| *Circus cyaneus*             | intermediate     | 0.427                                 | 0.545        | 1.062                           | 0.399       | FS          | -1.054      | 0.516       | -0.482      | -0.688      |
| *Circus macrourus*           | intermediate     | 0.811                                 | 0.180        | NA                              | NA          | NA          | FS          | -0.756      | 0.120       | -0.145      |
| *Circus pygargus*            | intermediate     | 1.208                                 | -0.100       | 0.082                           | -2.427      | FS          | -1.759      | 1.798       | -0.112      | 0.698       |
| *Coccothraustes coccothrautes* | altricial        | NA                                    | NA           | 0.675                           | 1.506       | NA          | NA          | NA          | NA          | NA          |
| Species             | Developmental mode | Wingspan Dataset analysis | Wing Elements Dataset analysis | Flight style | Discernment by flight style |
|---------------------|--------------------|----------------------------|--------------------------------|--------------|----------------------------|
|                     |                    | pFDA Axis 1                | pFDA Axis 2                   | pFDA Axis 1 | pFDA Axis 2                | pFDA Axis 1 | pFDA Axis 2 | pFDA Axis 3 | pFDA Axis 1 | pFDA Axis 2 | pFDA Axis 3 |
| Columba livia       | intermediate       | -0.945                    | 1.056                         | -1.272      | 1.221                      | 0.078       | -0.480      | -1.409      | 2.485       | 0.502       | -0.818      |
| Columba oenas       | intermediate       | NA                        | NA                            | 0.342       | 1.099                      | NA          | NA          | NA          | 1.370       | 0.493       | -1.313      |
| Columba palumbus    | intermediate       | -0.456                    | 1.256                         | 0.306       | -0.457                      | 0.216       | -1.662      | -1.058      | 0.228       | 0.364       | 0.741       |
| Coracias garrulus  | altricial          | NA                        | NA                            | 0.034       | 0.154                      | PT          | NA          | NA          | 1.524       | 0.738       | -0.333      |
| Corvus corax       | altricial          | 1.691                     | 1.632                         | NA          | NA                        | CF          | -1.137      | -2.735      | 0.403       | NA          | NA          |
| Corvus corone      | altricial          | 0.691                     | 1.266                         | 1.126       | 0.445                      | CF          | -0.916      | -1.239      | -0.200      | 0.487       | 1.832       | -0.609      |
| Corvus frugilegus  | altricial          | 1.084                     | 1.084                         | 1.127       | -0.339                      | CF          | -1.546      | -0.358      | -0.084      | 1.014       | 2.273       | -0.696      |
| Corvus monedula    | altricial          | -0.332                    | 0.331                         | 0.349       | -0.883                      | CF          | 0.080       | -0.129      | -0.623      | 0.900       | 1.433       | -0.079      |
| Corvus ruficollis  | altricial          | 1.521                     | 1.528                         | NA          | NA                        | CF          | -1.901      | -1.035      | 0.114       | NA          | NA          |
| Coturnix coturnix  | precocial          | -2.490                    | 1.803                         | 0.816       | 1.470                      | CF          | 0.693       | -0.453      | -3.888      | -1.311      | -1.469      | -1.594      |
| Crex crex          | precocial          | NA                        | NA                            | 0.551       | 0.761                      | CF          | NA          | NA          | NA          | -0.083      | -0.150      | -2.036      |
| Cuculus canorus    | altricial          | NA                        | NA                            | -0.549      | 0.812                      | PT          | NA          | NA          | NA          | 2.201       | 0.395       | -1.583      |
| Cursorius cursor   | precocial          | -1.503                    | 0.343                         | NA          | NA                        | CF          | 0.991       | -0.234      | -1.312      | NA          | NA          |
| Cygnus olor        | precocial          | 2.051                     | 3.350                         | 3.428       | -0.487                      | CF          | -2.726      | -3.033      | -0.745      | -1.740      | 2.420       | -0.376      |
| Delichon urbicum   | altricial          | -0.494                    | 0.179                         | -1.829      | -0.564                      | FG          | -0.435      | 1.163       | -0.812      | 2.697       | 0.057       | 1.256       |
| Dendrocopos major  | altricial          | NA                        | NA                            | -0.973      | -0.034                      | NA          | NA          | NA          | NA          | NA          | NA          |
| Dendrocopos minor  | altricial          | NA                        | NA                            | -0.139      | 0.247                      | PT          | NA          | NA          | -0.262      | -1.681      | 0.024       |
| Dryocopus martius  | altricial          | NA                        | NA                            | 1.043       | 0.955                      | PT          | NA          | NA          | 0.609       | 0.813       | -0.845      |
| Egretta garzetta   | intermediate       | -0.555                    | 0.649                         | 2.077       | -2.115                      | CF          | -0.040      | -0.100      | -1.115      | -1.569      | 1.488       | 0.826       |
| Emberiza citrinella| altricial          | NA                        | NA                            | 0.027       | 1.641                      | PT          | NA          | NA          | NA          | 0.311       | -0.332      | -1.511      |
| Emberiza hortulana | altricial          | -0.089                    | -0.106                        | NA          | NA                        | PT          | 0.716       | -0.865      | -0.272      | NA          | NA          |
| Emberiza schoeniclus| altricial         | NA                        | NA                            | 0.393       | 0.439                      | PT          | NA          | NA          | NA          | -0.305      | -0.515      | -0.765      |
| Enithrhus rubecula | altricial          | -0.619                    | -0.505                        | 0.646       | 0.875                      | PT          | 1.335       | -0.609      | -0.448      | -0.963      | -1.154      | -0.302      |
| Falco biarmicus    | intermediate       | 0.603                     | 1.349                         | NA          | NA                        | FG          | -1.296      | -0.608      | -0.482      | NA          | NA          |
| Falco columbarius  | intermediate       | -1.244                    | 0.255                         | 0.153       | 0.840                      | FG          | 0.789       | -0.048      | -1.225      | 0.284       | -0.001      | -0.751      |
| Species                        | Developmental mode | Wingspan Dataset analysis | Wing Elements Dataset analysis | Flight style | Wingspan Dataset analysis | Wing Elements Dataset analysis |
|-------------------------------|--------------------|---------------------------|-------------------------------|-------------|---------------------------|-------------------------------|
| Falco concolor               | intermediate       | 1.817                     | -0.132                        | FG          | -1.105                    | 0.390                         |
| Falco eleonorae              | intermediate       | 1.878                     | 0.020                         | NA          | NA                        | NA                            |
| Falco naumanni               | intermediate       | 0.020                     | -0.185                        | FG          | 0.075                     | 0.455                         |
| Falco pelegrinoides          | intermediate       | -1.951                    | 1.268                         | NA          | NA                        | NA                            |
| Falco peregrinus             | intermediate       | -0.695                    | 0.800                         | FG          | -0.070                    | -1.212                        |
| Falco subbuteo               | intermediate       | -0.289                    | -0.003                        | FG          | -1.017                    | 0.095                         |
| Falco tinnunculus            | intermediate       | 0.368                     | 0.264                         | FG          | 0.060                     | 0.455                         |
| Falco vespertinus            | intermediate       | 0.624                     | 0.020                         | NA          | NA                        | NA                            |
| Ficedula hypoleuca           | altricial          | -0.288                    | -1.398                        | PT          | -0.251                    | 1.522                         |
| Fratercula arctica           | intermediate       | 0.931                     | 2.649                         | CF          | NA                       | NA                            |
| Fringilla coelebs            | altricial          | -0.360                    | -0.334                        | NA          | -0.668                    | -0.655                         |
| Fringilla montifringilla     | altricial          | -0.380                    | 0.148                         | PT          | 0.037                     | 0.229                         |
| Fulica atra                  | precocial          | -2.316                    | 1.011                         | CF          | 0.513                     | -0.708                         |
| Galerida cristata            | altricial          | -0.547                    | 0.710                         | NA          | 0.063                     | -0.484                         |
| Gallinago gallinago          | precocial          | -1.246                    | -0.367                        | PT          | 1.081                     | -0.753                         |
| Gallinula chloropus          | precocial          | NA                        | 2.064                         | CF          | -0.817                    | -0.873                         |
| Garrulus glandarius          | altricial          | 0.465                     | 0.020                         | 0.728       | 0.728                     | -1.753                         |
| Gavia immer                  | precocial          | NA                        | 2.427                         | CF          | -0.415                    | -0.391                         |
| Gavia stellata               | precocial          | NA                        | 2.186                         | CF          | 0.411                     | -0.278                         |
| Glareola nordmanni           | precocial          | 0.253                     | 0.079                         | NA          | -0.721                    | 2.440                         |
| Glareola pratincola          | precocial          | 0.686                     | -0.213                        | NA          | 0.213                     | 2.780                         |
| Grus grus                    | precocial          | NA                        | 1.896                         | CF          | 0.083                     | 1.278                         |
| Gypaetus barbatus            | intermediate       | NA                        | 1.401                         | FS          | -0.718                    | -0.637                         |
| Gyps fulvus                  | intermediate       | NA                        | 1.100                         | FS          | NA                        | 0.145                         |
| Haematopus ostralegus         | precocial          | -0.132                    | 0.100                         | FS          | NA                        | 0.213                         |
| Haliaeetus albicilla          | intermediate       | NA                        | 2.264                         | FS          | NA                        | NA                            |
| Species                | Developmental mode | Discrimination by developmental mode | Flight style | Discrimination by flight style |
|------------------------|--------------------|--------------------------------------|--------------|-------------------------------|
|                        |                    | Wingspan Dataset analysis           |              | Wingspan Dataset analysis      |
|                        |                    | pFDA Axis 1 | pFDA Axis 2 | pFDA Axis 1 | pFDA Axis 2 | Flight style | pFDA Axis 1 | pFDA Axis 2 | pFDA Axis 3 | pFDA Axis 1 | pFDA Axis 2 | pFDA Axis 3 |
| Haliaeetus vocifer     | intermediate       | 0.545      | 2.136      | NA          | NA          | FS          | -1.253      | -1.877      | -0.514      | NA          | NA          | NA          |
| Hieraaetus pennatus    | intermediate       | 0.475      | 0.448      | NA          | NA          | FS          | -0.548      | -0.224      | -0.381      | NA          | NA          | NA          |
| Himantopus himantopus  | precocial          | 0.705      | 0.515      | NA          | NA          | CF          | -1.723      | 1.399       | -0.624      | NA          | NA          | NA          |
| Hippolais icterina     | altricial          | -0.760     | 0.054      | NA          | NA          | PT          | 0.068       | 0.821       | -0.842      | NA          | NA          | NA          |
| Hippolais pallida      | altricial          | -0.471     | -0.451     | NA          | NA          | PT          | 1.160       | -0.593      | -0.382      | NA          | NA          | NA          |
| Hippolais polyglotta   | altricial          | -0.180     | -0.584     | NA          | NA          | PT          | 1.030       | -0.519      | -0.215      | NA          | NA          | NA          |
| Hirundo daurica        | altricial          | 0.695      | 0.173      | NA          | NA          | FG          | -1.112      | 0.834       | -0.186      | NA          | NA          | NA          |
| Hirundo rustica        | altricial          | 1.026      | -0.108     | -0.559      | -0.078      | FG          | -1.440      | 1.440       | -0.039      | 2.389       | 0.506       | -0.126      |
| Jynx torquilla         | altricial          | -1.578     | -0.267     | NA          | NA          | PT          | 1.548       | -0.027      | -1.627      | NA          | NA          | NA          |
| Lagopus lagopus        | precocial          | NA         | NA         | 1.032       | 1.509       | CF          | NA          | NA          | NA          | -0.271      | 0.248       | -1.466      |
| Lagopus muta           | precocial          | NA         | NA         | 0.677       | 0.160       | CF          | NA          | NA          | NA          | 0.004       | 0.450       | -1.066      |
| Lanioturdus torquatus  | altricial          | -0.732     | 0.772      | NA          | NA          | PT          | 0.265       | -0.679      | -0.932      | NA          | NA          | NA          |
| Larus cachinnans       | intermediate       | 0.876      | 1.567      | 2.356       | -2.105      | CF          | -1.998      | -0.104      | -0.414      | -0.965      | 1.509       | 0.857       |
| Larus argentatus       | intermediate       | 0.787      | 1.877      | NA          | NA          | CF          | -1.384      | -1.555      | -0.337      | NA          | NA          | NA          |
| Larus canus            | intermediate       | 1.858      | 0.237      | 0.254       | 0.078       | CF          | -2.154      | 1.108       | 0.233       | 0.590       | 1.179       | -0.596      |
| Larus fuscus           | intermediate       | 0.179      | 1.869      | NA          | NA          | CF          | -1.804      | -0.047      | -0.840      | NA          | NA          | NA          |
| Larus marinus          | intermediate       | NA         | NA         | 1.467       | -1.132      | CF          | NA          | NA          | NA          | 0.324       | 2.484       | 0.516       |
| Larus minutus          | intermediate       | 0.654      | -0.917     | NA          | NA          | CF          | 1.650       | -2.005      | 0.344       | NA          | NA          | NA          |
| Larus ridibundus       | intermediate       | 0.055      | 0.743      | -0.593      | -0.625      | CF          | -1.428      | 1.313       | -0.813      | 0.597       | 0.679       | 0.462       |
| Limosa lapponica       | precocial          | -0.417     | 1.189      | 0.700       | 0.635       | CF          | -1.010      | 0.460       | -1.130      | 0.034       | 0.515       | -0.727      |
| Limosa limosa          | precocial          | NA         | NA         | 0.625       | -0.925      | CF          | NA          | NA          | NA          | -0.542      | 0.490       | 0.813       |
| Locustella naevia      | altricial          | -1.424     | -0.178     | NA          | NA          | PT          | 1.436       | -0.312      | -0.961      | NA          | NA          | NA          |
| Loxia curvirostra      | altricial          | NA         | NA         | 0.065       | 0.455       | PT          | NA          | NA          | NA          | 0.722       | 0.209       | -0.227      |
| Species                  | Developmental mode | Discrimination by developmental mode | Flight style | Discrimination by flight style |
|-------------------------|--------------------|-------------------------------------|--------------|---------------------------------|
|                         |                    | Wingspan Dataset analysis           |              |                                |
|                         |                    | pFDA Axis 1 | pFDA Axis 2 | pFDA Axis 1 | pFDA Axis 2 | pFDA Axis 1 | pFDA Axis 2 | pFDA Axis 1 | pFDA Axis 2 | pFDA Axis 1 | pFDA Axis 2 | pFDA Axis 3 | pFDA Axis 1 | pFDA Axis 2 | pFDA Axis 3 |
| Lullula arborea         | altricial          | -0.188     | -0.037     | NA         | NA         | PT         | 0.610       | -0.655       | -0.373       | NA         | NA         | NA         |
| Luscinia megarhynchos   | altricial          | -0.584     | -0.085     | -0.668     | -0.153     | PT         | 0.643       | -0.153       | -0.597       | 1.263      | -0.035      | 0.249      |
| Luscinia svecia         | altricial          | NA         | NA         | -0.372     | 0.417      | PT         | NA         | NA         | NA         | NA         | 0.479      | -0.647      | 0.088      |
| Lymnocryptes minimus    | precocial          | NA         | NA         | -0.165     | 0.897      | CF         | NA         | NA         | NA         | 0.489      | -0.649      | -1.296      |
| Mergus merganser        | precocial          | -2.853     | 2.718      | NA         | NA         | CF         | -1.408      | 1.856       | -3.402       | NA         | NA         | NA         |
| Mergus serrator         | precocial          | NA         | NA         | 1.418      | 0.878      | CF         | NA         | NA         | NA         | -1.081     | -0.015      | -0.973      |
| Merops apiaster         | altricial          | -0.430     | 0.299      | NA         | NA         | CF         | -0.617      | 1.337       | -1.400       | NA         | NA         | NA         |
| Micronisus gabar        | intermediate       | -0.812     | -0.470     | NA         | NA         | FS         | 0.819       | 0.526       | -0.872       | NA         | NA         | NA         |
| Milvus migrans          | intermediate       | 0.913      | 0.772      | 0.395      | -0.446     | FS         | -1.059      | -0.439      | -0.185       | 0.065      | 1.121      | -0.280      |
| Milvus milvus           | intermediate       | 1.628      | 0.702      | 1.217      | 0.028      | FS         | -1.769      | -0.016      | 0.126        | -0.805     | 0.652      | -0.255      |
| Monticola solitarius    | altricial          | NA         | NA         | 0.168      | -0.360     | PT         | NA         | NA         | NA         | 0.956      | 0.696      | 0.473       |
| Motacilla alba          | altricial          | 0.022      | -0.039     | 0.365      | -0.020     | PT         | 0.182      | -0.202      | -0.308       | -0.121     | -0.229     | 0.339       |
| Motacilla cinerea       | altricial          | -0.205     | -0.097     | -0.544     | -1.183     | PT         | -0.114     | 0.692       | -0.528       | 0.386      | -0.163     | 1.048       |
| Motacilla flava         | altricial          | -0.473     | 0.023      | NA         | NA         | PT         | -0.322     | 1.192       | -0.757       | NA         | NA         | NA         |
| Muscicapa striata       | altricial          | -0.059     | -0.515     | -1.134     | -0.941     | PT         | 0.505      | 0.126       | -0.276       | 0.940      | -0.539     | 1.353       |
| Neophron percnopterus   | intermediate       | 0.565      | 1.801      | 0.889      | -0.345     | FS         | -1.500      | -0.689      | -0.665       | -0.402     | 1.361      | 0.415       |
| Nucifraga caryocatacetes| altricial          | 0.763      | 0.262      | NA         | NA         | CF         | -0.280     | -0.791      | 0.015        | NA         | NA         | NA         |
| Numenius arquata        | precocial          | 0.255      | 1.743      | 1.384      | -0.981     | CF         | -1.385     | -0.638      | -0.785       | -0.822     | 1.295      | 0.822       |
| Numenius phaeopus       | precocial          | -0.242     | 1.133      | NA         | NA         | CF         | -0.931     | 0.209       | -0.992       | NA         | NA         | NA         |
| Nycticorax nycticorax   | intermediate       | 0.244      | 0.800      | 0.243      | 0.350      | CF         | -0.761     | -0.112      | -0.764       | -0.394     | 0.371      | 0.164       |
| Oenanthe oenanthe       | altricial          | 0.505      | 0.148      | NA         | NA         | PT         | -0.807     | 0.576       | -0.222       | NA         | NA         | NA         |
| Oriolus oriolus         | altricial          | NA         | NA         | 0.057      | -0.250     | PT         | NA         | NA         | NA         | 0.500      | 0.331      | 0.318       |
| Otis tarda              | precocial          | NA         | NA         | 1.015      | 0.238      | CF         | NA         | NA         | NA         | 1.374      | 2.954      | -0.640      |
| Otus scops              | intermediate       | NA         | NA         | 1.039      | -1.513     | CF         | NA         | NA         | NA         | -1.807     | -0.434     | 1.395       |
| Pandion haliaetus       | intermediate       | 0.620      | 2.217      | 1.020      | -0.651     | FS         | -2.115     | -0.541      | -0.973       | -0.188     | 1.588      | 1.024       |
| Parus ater              | altricial          | -1.252     | -0.615     | -0.478     | 0.005      | PT         | 0.918      | 1.090       | -1.029       | -0.279     | -1.306     | 0.417       |
| Species                  | Developmental mode | Discrimination by developmental mode | Wingspan Dataset analysis | Wing Elements Dataset analysis | Flight style | Discrimination by flight style | Wingspan Dataset analysis | Wing Elements Dataset analysis |
|-------------------------|--------------------|----------------------------------------|---------------------------|-------------------------------|--------------|-------------------------------|---------------------------|-------------------------------|
|                         |                    |                                        | pFDA Axis 1               | pFDA Axis 2                   |              | pFDA Axis 1                  | pFDA Axis 2               | pFDA Axis 3                   | pFDA Axis 1                  | pFDA Axis 2               | pFDA Axis 3                   | pFDA Axis 1                  | pFDA Axis 2               | pFDA Axis 3                   |
| Parus caeruleus         | altricial          |                                        | -0.626                    | 0.879                         | PT           | NA                           | NA                        | NA                           | 0.227                        | -1.180                    | -0.156                        |
| Parus major             | altricial          |                                        | 0.788                     | 0.999                         | PT           | NA                           | NA                        | NA                           | -0.820                       | -0.834                    | -0.652                        |
| Parus montanus          | altricial          |                                        | -0.255                    | -0.168                        | PT           | NA                           | NA                        | NA                           | -0.979                       | -1.617                    | 0.932                         |
| Passer domesticus       | altricial          |                                        | 0.057                     | 0.495                         | PT           | NA                           | NA                        | NA                           | 0.022                        | -0.470                    | -0.450                        |
| Passer montanus         | altricial          |                                        | -0.040                    | 1.163                         | PT           | NA                           | NA                        | NA                           | 0.228                        | -0.532                    | -1.067                        |
| Pavo cristatus          | precocial          |                                        | 1.956                     | 0.628                         | CF           | NA                           | NA                        | NA                           | 0.188                        | 2.266                     | -1.178                        |
| Pelecanus onocrotalus   | intermediate       |                                        | 2.601                     | 2.349                         | FS           | -2.977                      | -1.357                    | -0.324                       | -2.290                       | 2.271                     | 2.105                         |
| Perdix perdix           | precocial          |                                        | 0.208                     | 2.125                         | CF           | NA                           | NA                        | NA                           | 0.333                        | -0.216                    | -1.938                        |
| Pernis apivorus         | intermediate       |                                        | 0.797                     | NA                            | FS           | -0.692                      | -1.286                    | -0.119                       | NA                           | NA                        | NA                           |
| Phalacrocorax aristotelis | intermediate      |                                        | 0.068                     | -0.147                        | CF           | NA                           | NA                        | NA                           | -1.039                       | 0.093                     | 1.408                         |
| Phalacrocorax carbo     | intermediate       |                                        | -1.011                    | 2.239                         | 1.306        | 0.203                        | CF                       | -0.514                       | -1.270                      | -1.695                    | -0.420                       | 1.304                       | -0.127                       |
| Philomachus pugnax      | precocial          |                                        | -0.779                    | 0.702                         | NA           | NA                           | NA                        | CF                           | 0.630                        | -1.131                    | -0.928                       | NA                           | NA                        | NA                           |
| Phoenicopterus ruber    | intermediate       |                                        | -0.053                    | 2.530                         | NA           | NA                           | NA                        | CF                           | -1.499                       | -1.241                    | -1.382                       | NA                           | NA                        | NA                           |
| Phoenicurus ochrurus    | altricial          |                                        | -0.048                    | -0.308                        | NA           | PT                           | -0.171                    | 0.929                        | -0.426                       | NA                        | NA                           | NA                           | NA                        | NA                           |
| Phoenicurus phoenicus   | altricial          |                                        | -0.342                    | -0.463                        | 0.049        | PT                           | 0.989                     | -0.435                       | -0.344                       | 0.568                     | -0.287                       | -0.091                       | NA                           | NA                        | NA                           |
| Phylloscopus trochilus  | altricial          |                                        | -0.474                    | -0.879                        | NA           | NA                           | PT                       | 1.150                        | 0.137                        | -0.410                    | NA                           | NA                        | NA                           | NA                        | NA                           |
| Pica pica               | altricial          |                                        | -0.843                    | 0.931                         | 0.107        | 0.632                        | CF                       | -0.072                       | -0.218                       | -1.016                    | -0.202                       | 0.203                        | 0.248                       | NA                        | NA                           |
| Picus viridis           | altricial          |                                        | 0.003                     | 0.673                         | PT           | NA                           | NA                        | NA                           | 0.150                        | -0.354                    | 0.237                         |
| Platalea leucorodia     | intermediate       |                                        | -0.018                    | 1.521                         | NA           | NA                           | FS                       | -0.414                       | -1.526                       | -0.978                    | NA                           | NA                        | NA                           | NA                        | NA                           |
| Electrophenax nivalis   | altricial          |                                        | -0.397                    | 0.673                         | PT           | NA                           | NA                        | NA                           | 1.461                        | 0.550                     | -0.861                        |
| Plegadis falcinellus    | intermediate       |                                        | 0.568                     | -0.155                        | FS           | NA                           | NA                        | NA                           | -0.596                       | 0.382                     | 0.331                         |
| Pluvialis apricaria     | precocial          |                                        | -0.830                    | 0.595                         | -0.395       | 0.310                        | CF                       | 0.760                        | -1.074                       | -1.033                    | 1.074                        | 0.340                        | -0.551                       | NA                        | NA                           |
| Pluvialis squatarola    | precocial          |                                        | -0.555                    | 0.715                         | 0.689        | 0.945                        | CF                       | 0.307                        | -0.842                       | -0.960                    | 0.148                        | 0.189                        | -1.083                       | NA                        | NA                           |
| Podiceps auritus       | precocial          |                                        | 1.045                     | 0.993                         | CF           | NA                           | NA                        | NA                           | -1.763                       | -0.308                    | -0.794                        |
| Podiceps cristatus     | precocial          |                                        | -2.142                    | 1.900                         | 1.260        | 0.353                        | CF                       | 0.568                        | -1.147                       | -2.249                    | -1.244                       | 0.608                        | -0.436                       | NA                        | NA                           |
| Podiceps grisegeana    | precocial          |                                        | 1.311                     | 0.058                         | CF           | NA                           | NA                        | NA                           | -1.705                       | 0.435                     | 0.077                         |
| Species                  | Developmental mode | Discrimination by developmental mode | Flight style                                      | Discrimination by flight style |
|-------------------------|--------------------|---------------------------------------|--------------------------------------------------|--------------------------------|
|                         |                    | Wingspan Dataset analysis             | Wing Elements Dataset analysis                    | Wingspan Dataset analysis     | Wing Elements Dataset analysis |
|                         |                    | pFDA Axis 1  | pFDA Axis 2  | pFDA Axis 1  | pFDA Axis 2  | pFDA Axis 1  | pFDA Axis 2  | pFDA Axis 1  | pFDA Axis 2  | pFDA Axis 1  | pFDA Axis 2  | pFDA Axis 1  | pFDA Axis 2  |
| Podiceps nigricollis    | precocial          | NA         | NA         | 0.933       | 0.324       | CF          | NA         | NA         | NA         | -1.792      | -0.480       | -0.286       |
| Prunella modularis      | altricial          | -1.359     | -0.193     | 0.366       | 1.202       | PT          | 1.597      | -0.633     | -0.923     | -0.518      | -0.942       | -1.174       |
| Pterocles coronatus     | precocial          | -2.022     | 1.119      | NA          | NA          | CF          | 0.691      | -0.255     | -2.081     | NA          | NA          | NA          |
| Pterocles orientalis    | precocial          | -0.651     | 1.151      | NA          | NA          | CF          | -0.111     | -0.654     | -1.370     | NA          | NA          | NA          |
| Pyrrhula pyrrhula       | altricial          | NA         | NA         | 0.170       | -0.391      | PT          | NA         | NA         | NA         | -0.474      | -0.559       | 0.533        |
| Rallus aquaticus        | precocial          | NA         | NA         | 0.604       | 2.261       | CF          | NA         | NA         | NA         | -0.739      | -0.994       | -2.885       |
| Recurvirostra avosetta  | precocial          | NA         | NA         | 1.255       | 0.161       | CF          | NA         | NA         | NA         | -0.460      | 0.787        | -0.879       |
| Regulus ignicpilla      | altricial          | -1.430     | -1.045     | NA          | NA          | PT          | 2.120      | -0.056     | -0.847     | NA          | NA          | NA          |
| Regulus regulus         | altricial          | -0.596     | -1.269     | -2.286      | -0.224      | PT          | 1.288      | 0.689      | -0.490     | 1.242       | -2.110       | 1.817        |
| Riparia riparia         | altricial          | -0.090     | -0.013     | -0.889      | -0.659      | FG          | -1.213     | 2.303      | -0.725     | 2.324       | 0.335        | 0.495        |
| Rissa tridactyla        | intermediate       | NA         | NA         | 0.054       | -0.578      | CF          | NA         | NA         | NA         | -0.021      | 0.668        | 0.704        |
| Saxicola rubetra        | altricial          | -0.781     | -0.151     | -0.755      | -0.520      | PT          | 0.249      | 0.881      | -0.817     | 0.597       | -0.529       | 0.902        |
| Saxicola torquatus      | altricial          | NA         | NA         | 0.230       | 0.024       | PT          | NA         | NA         | NA         | -0.771      | -1.162       | 0.664        |
| Scolopax rusticola      | precocial          | NA         | NA         | -0.038      | 1.056       | CF          | NA         | NA         | NA         | 1.056       | 0.444        | -0.987       |
| Serinus serinus         | altricial          | -0.356     | -0.435     | NA          | NA          | PT          | -0.101     | 1.406      | -0.608     | NA          | NA          | NA          |
| Sitta europaea          | altricial          | NA         | NA         | 0.116       | 0.351       | PT          | NA         | NA         | NA         | 0.127       | -0.377       | -0.329       |
| Somateria mollissima    | precocial          | NA         | NA         | 0.900       | 0.099       | CF          | NA         | NA         | NA         | -1.016      | 0.237        | 0.275        |
| Stercorarius parasitic  | intermediate       | NA         | NA         | 1.092       | -2.259      | CF          | NA         | NA         | NA         | -0.708      | 1.132        | 1.078        |
| Sterna sandvicensis     | intermediate       | NA         | NA         | -0.445      | -3.005      | CF          | NA         | NA         | NA         | 0.798       | 1.056        | 1.938        |
| Streptopelia turtur     | intermediate       | -0.581     | 0.032      | -0.219      | 0.769       | CF          | 0.215      | 0.506      | -1.131     | 1.110       | -0.205       | -0.935       |
| Strix aluco             | intermediate       | NA         | NA         | 0.659       | 0.661       | CF          | NA         | NA         | NA         | -0.849      | 0.264        | -0.010       |
| Sturnus vulgaris        | altricial          | -1.048     | 1.247      | 0.276       | 0.629       | PT          | -0.002     | -0.624     | -1.113     | 0.840       | 0.695        | -0.682       |
| Sylvia atricapilla      | altricial          | -1.057     | 0.298      | 0.524       | 1.214       | PT          | 0.797      | -0.455     | -0.872     | 0.089       | -0.457       | -1.026       |
| Sylvia borin            | altricial          | -0.519     | 0.024      | NA          | NA          | PT          | 0.315      | 0.142      | -0.623     | NA          | NA          | NA          |
| Sylvia communis         | altricial          | -0.754     | -0.158     | NA          | NA          | PT          | 0.988      | -0.418     | -0.616     | NA          | NA          | NA          |
| Sylvia curruca          | altricial          | -0.872     | -0.309     | -0.537      | -0.038      | PT          | 0.699      | 0.477      | -0.757     | 0.122       | -0.977       | 0.422        |
| Species          | Development mode | Discrimination by developmental mode | Flight style | Discrimination by flight style |
|------------------|------------------|--------------------------------------|--------------|--------------------------------|
|                  |                  | Wingspan Dataset analysis | Wing Elements Dataset analysis |                | Wingspan Dataset analysis | Wing Elements Dataset analysis |
|                  | pFDA Axis 1      | pFDA Axis 2      | pFDA Axis 1 | pFDA Axis 2 |                | pFDA Axis 1 | pFDA Axis 2 | pFDA Axis 3 | pFDA Axis 1 | pFDA Axis 2 | pFDA Axis 3 |
| Sylvia hortensis | altricial        | -0.403          | 0.199      | NA          | NA          | PT               | 0.565     | -0.725     | -0.490     | NA          | NA          | NA          |
| Tetrao tetrix    | precocial        | NA               | NA         | 0.467       | 0.169       | CF               | NA        | NA         | NA         | 0.353       | 0.980       | -0.440      |
| Tetrao urogallus | precocial        | NA               | NA         | 1.250       | -0.197      | CF               | NA        | NA         | NA         | 0.195       | 1.717       | -0.034      |
| Tichodroma muraria | altricial     | NA               | NA         | 0.496       | -0.739      | PT               | NA        | NA         | NA         | -0.133      | -0.138      | 0.314       |
| Tringa nebularia | precocial        | -0.823          | 0.980      | NA          | NA          | CF               | -0.902    | 1.113      | -1.338     | NA          | NA          | NA          |
| Tringa ochropus  | precocial        | -0.604          | -0.060     | NA          | NA          | CF               | 0.741     | -0.283     | -0.783     | NA          | NA          | NA          |
| Tringa totanus   | precocial        | NA               | NA         | 0.144       | 0.244       | CF               | NA        | NA         | NA         | 0.204       | -0.143      | -0.343      |
| Troglogytes aedon | altricial      | NA               | NA         | 0.014       | 1.695       | PT               | NA        | NA         | NA         | -1.230      | -2.071      | -0.693      |
| Turdus iliacus   | altricial        | NA               | NA         | 0.258       | -0.556      | PT               | NA        | NA         | NA         | -0.245      | 0.049       | 0.372       |
| Turdus merula    | altricial        | -0.588          | 0.897      | 0.258       | 0.470       | PT               | 0.669     | -1.779     | -0.622     | 0.125       | 0.312       | -0.212      |
| Turdus philomelos | altricial      | -0.870          | 0.738      | 0.841       | 0.707       | PT               | 0.365     | -0.640     | -0.876     | -0.109      | 0.281       | -1.015      |
| Turdus pilaris   | altricial        | 0.351           | 0.786      | 0.902       | 0.991       | PT               | -0.368    | -1.006     | -0.242     | 0.501       | 0.788       | -1.231      |
| Turdus torquatus | altricial        | NA               | NA         | -0.759      | -0.543      | PT               | NA        | NA         | NA         | 0.782       | 0.426       | 0.713       |
| Turdus viscivorus | altricial       | -0.250          | 1.407      | 0.523       | 1.744       | PT               | -0.626    | -0.821     | -0.715     | 0.700       | 0.797       | -1.647      |
| Tyto alba        | intermediate     | NA               | NA         | 1.195       | -0.128      | CF               | NA        | NA         | NA         | -0.461      | 1.017       | -0.048      |
| Uria aalge       | intermediate     | 0.073           | -0.061     | -0.554      | -0.287      | CF               | 0.966     | -1.425     | -0.696     | 1.180       | -0.181      | 0.904       |
| Vanellus vanellus | precocial       | 0.666           | 0.657      | 0.664       | -0.209      | CF               | -0.325    | -1.187     | -0.336     | -0.080      | 0.558       | -0.030      |
Table S4: Canonical and structure coefficients of the phylohenetic discriminant function analyses

1. Wing-span Dataset

| Explained variance, % | Developmental mode | pFDA Axis 1 | pFDA Axis 2 | Flight style | pFDA Axis 1 | pFDA Axis 2 | pFDA Axis 3 |
|-----------------------|--------------------|-------------|-------------|--------------|-------------|-------------|-------------|
|                       |                     | 73.66       | 26.34       |              | 53.98       | 36.96       | 9.06        |
| Canonical coefficients | Intercept           | 21.135      | -5.862      | Intercept    | -7.233      | -3.751      | 8.444       |
|                       | Mass                | -16.747     | 8.361       | Mass         | 9.859       | -9.483      | -8.893      |
|                       | Wing-span           | 13.267      | -5.985      | Wing-span    | 10.308      | -24.642     | 11.292      |
|                       | Wing-area           | 5.959       | 3.150       | Wing-area    | -23.362     | 27.465      | -1.648      |
| Structure coefficients | Mass                | 0.336       | 0.839       | Mass         | -0.604      | -0.507      | -0.101      |
|                       | Wing-span           | 0.538       | 0.718       | Wing-span    | -0.669      | -0.495      | 0.131       |
|                       | Wing-area           | 0.497       | 0.744       | Wing-area    | -0.709      | -0.406      | 0.056       |

2. Wing Elements Dataset

| Explained variance, % | Developmental mode | pFDA Axis 1 | pFDA Axis 2 | Flight style | pFDA Axis 1 | pFDA Axis 2 | pFDA Axis 3 |
|-----------------------|--------------------|-------------|-------------|--------------|-------------|-------------|-------------|
|                       |                     | 64.28       | 35.72       |              | 61.97       | 26.97       | 11.06       |
| Canonical coefficients | Intercept           | -8.400      | 13.282      | Intercept    | 1.554       | -11.294     | -0.610      |
|                       | Mass                | -9.585      | 9.774       | Mass         | 8.102       | -0.838      | 0.274       |
|                       | hu                  | 25.369      | 8.178       | hu           | -21.238     | 1.640       | -19.509     |
|                       | ul                  | -13.671     | -20.779     | ul           | 6.411       | -0.884      | 27.636      |
|                       | mn                  | 0.260       | 4.019       | mn           | 2.796       | 0.964       | -5.432      |
|                       | fprim               | -0.408      | -1.254      | fprim        | 6.015       | 4.714       | -3.177      |
| Discrimination by ... | Developmental mode | pFDA Axis 1 | pFDA Axis 2 | Flight style | pFDA Axis 1 | pFDA Axis 2 | pFDA Axis 3 |
|-----------------------|-------------------|------------|------------|-------------|------------|------------|------------|
| Explained variance, % |                   | 64.28      | 35.72      |             | 61.97      | 26.97      | 11.06      |
| Structure coefficients | Mass              | 0.667      | -0.076     | Mass        | -0.347     | 0.767      | -0.129     |
|                       | hu                | 0.708      | -0.189     | hu          | -0.427     | 0.764      | -0.049     |
|                       | ul                | 0.667      | -0.302     | ul          | -0.365     | 0.808      | 0.080      |
|                       | mn                | 0.627      | -0.153     | mn          | -0.223     | 0.812      | -0.116     |
|                       | fprim             | 0.554      | -0.287     | fprim       | -0.105     | 0.884      | -0.001     |
Table S5: Standard pairwise t-test for differences between flight styles and developmental modes.

Not corrected for multiple comparisons values of significance are reported.

| Pairwise t-test for flight styles | Pairwise t-test for developmental modes |
|----------------------------------|----------------------------------------|
| hu/ta                            |                                      |
| CF                               | 1<0.001                                |
| FG                               | <0.001<0.001                           |
| FS                               | 0.113<0.001                            |
| PT                               | <0.0010.005<0.001                      |
| ul/ta                            |                                      |
| CF                               | 10.541<0.001                           |
| FG                               | 0.5411<0.001                           |
| FS                               | <0.0010.0081<0.001                     |
| PT                               | <0.0010.0790.0771                      |
| mn/ta                            |                                      |
| CF                               | 1<0.0010.0160.031                      |
| FG                               | <0.0011<0.0010.0029<0.001             |
| FS                               | 0.016<0.0011<0.001                     |
| PT                               | 0.0310.002<0.0011                      |
| fprim/ta                         |                                      |
| CF                               | 1<0.0010.045<0.001                     |
| FG                               | <0.0011<0.001<0.001                     |
| FS                               | 0.045<0.0011<0.001                     |
| PT                               | <0.001<0.0011                         |
Pairwise t-test for developmental modes – flight style groups:

|      | altricial-CF | altricial-FG | altricial-PT | precocial-CF | intermediate-CF | intermediate-FG | intermediate-FS |
|------|--------------|--------------|--------------|--------------|----------------|----------------|----------------|
| huta |              |              |              |              |                 |                 |                 |
| altricial-CF | 1            | 0.002        | 0.941        | <0.001       | 0.002          | 0.841          | 0.028          |
| altricial-FG | 0.002        | 1            | <0.001       | <0.001       | <0.001         | 0.008          | <0.001         |
| altricial-PT | 0.941        | <0.001       | 1            | <0.001       | <0.001         | 0.755          | <0.001         |
| precocial-CF | <0.001       | <0.001       | <0.001       | 1            | 0.311          | 0.001          | 0.023          |
| intermediate-CF | 0.002       | <0.001       | <0.001       | 0.311        | 1              | 0.004          | 0.196          |
| intermediate-FG | 0.841       | 0.008        | 0.755        | 0.001        | 0.004          | 0.023          | 0.036          |
| intermediate-FS | 0.028       | <0.001       | <0.001       | 0.023        | 0.196          | 0.036          | 1              |
| ul/ta |              |              |              |              |                 |                 |                 |
| altricial-CF | 0.384        | 0.862        | 0.345        | <0.001       | 0.693          | 0.088          | 0.335          |
| altricial-FG | 0.384        | 1            | 0.345        | 0.023        | 0.468          | 0.442          | 0.066          |
| altricial-PT | 0.862        | 0.345        | 1            | <0.001       | 0.645          | 0.047          | 0.043          |
| precocial-CF | <0.001       | 0.023        | <0.001       | 1            | <0.001         | 0.214          | <0.001         |
| intermediate-CF | 0.693       | 0.468        | 0.645        | <0.001       | 1              | 0.082          | 0.03           |
| intermediate-FG | 0.088       | 0.442        | 0.047        | 0.214        | 0.082          | 1              | 0.005          |
| intermediate-FS | 0.335       | 0.066        | 0.043        | <0.001       | 0.03           | 0.005          | 1              |
| mn/ta |              |              |              |              |                 |                 |                 |
| altricial-CF | 1            | 0.008        | 0.959        | 0.829        | 0.055          | 0.254          | 0.038          |
| altricial-FG | 0.008        | 1            | 0.001        | 0.001        | <0.001         | 0.161          | <0.001         |
| altricial-PT | 0.959        | 0.001        | 1            | 0.541        | <0.001         | 0.167          | <0.001         |
| precocial-CF | 0.829        | 0.001        | 0.541        | 1            | 0.001          | 0.111          | 0.001          |
| intermediate-CF | 0.055       | <0.001       | <0.001       | 0.001        | 1              | 0.003          | 0.698          |
| intermediate-FG | 0.254       | 0.161        | 0.167        | 0.111        | 0.003          | 1              | 0.002          |
| intermediate-FS | 0.038       | <0.001       | <0.001       | 0.001        | 0.698          | 0.002          | 1              |
| fprim/ta  | altricial-CF | altricial-FG | altricial-PT | precocial-CF | intermediate-CF | intermediate-FG | intermediate-FS |
|----------|--------------|--------------|--------------|--------------|----------------|----------------|----------------|
| altricial-CF | 1            | <0.001       | 0.639        | 0.003        | 0.016          | 0.712          | <0.001         |
| altricial-FG | <0.001       | 1            | <0.001       | <0.001       | <0.001         | <0.001         | <0.001         |
| altricial-PT | 0.639        | <0.001       | 1            | <0.001       | <0.001         | 0.396          | <0.001         |
| precocial-CF | 0.003        | <0.001       | <0.001       | 1            | 0.362          | 0.044          | 0.122          |
| intermediate-CF | 0.016        | <0.001       | <0.001       | 0.362        | 1              | 0.114          | 0.033          |
| intermediate-FG | 0.712        | <0.001       | 0.396        | 0.044        | 0.114          | 1              | 0.008          |
| intermediate-FS | <0.001       | <0.001       | <0.001       | 0.122        | 0.033          | 0.008          | 1              |
Table S6: Phylogenetic pairwise t-test for differences between flight styles and developmental modes.

Not corrected for multiple comparisons values of significance are reported.

| Pairwise t-test for flight styles | Pairwise t-test for developmental modes |
|---------------------------------|----------------------------------------|
| **hu/ta** CF FG FS PT **hu/ta** | **altricial** precocial intermediate    |
| CF 1 0.003 0.595 0.077 altricial 1 | 0.062 1 0.148                          |
| FG 0.003 1 0.037 0.160 precocial 0.062 | 1 0.460                               |
| FS 0.595 0.037 1 0.331 intermediate 0.148 | 0.460 1                              |
| PT 0.077 0.160 0.331 1                |                                        |
| **ul/ta** CF FG FS PT **ul/ta** | **altricial** precocial intermediate    |
| CF 1 0.743 0.073 0.264 altricial 1 | 0.075 0.890                           |
| FG 0.743 1 0.224 0.346 precocial 0.075 | 1 0.008                               |
| FS 0.073 0.224 1 0.604 intermediate 0.890 | 0.008 1                              |
| PT 0.264 0.346 0.604 1                |                                        |
| **mn/ta** CF FG FS PT **mn/ta** | **altricial** precocial intermediate    |
| CF 1 0.156 0.536 0.667 altricial 1 | 0.828 0.265                           |
| FG 0.156 1 0.156 0.196 precocial 0.828 | 1 0.286                               |
| FS 0.536 0.156 1 0.436 intermediate 0.265 | 0.286 1                              |
| PT 0.667 0.196 0.436 1                |                                        |
| **fprim/ta** CF FG FS PT **fprim/ta** | **altricial** precocial intermediate    |
| CF 1 0.006 0.508 0.154 altricial 1 | 0.092 0.068                           |
| FG 0.006 1 0.006 0.044 precocial 0.092 | 1 0.969                               |
| FS 0.508 0.006 1 0.122 intermediate 0.068 | 0.969 1                              |
| PT 0.154 0.044 0.122 1                |                                        |
Pairwise t-test for developmental modes – flight style groups:

|       | altricial-CF | altricial-FG | altricial-PT | precocial-CF | intermediate-CF | intermediate-FG | intermediate-FS |
|-------|--------------|--------------|--------------|--------------|----------------|----------------|----------------|
| hu/ta |               |              |              |              |                |                |                |
| altricial-CF | 1             | 0.032        | 0.976        | 0.135        | 0.188          | 0.929          | 0.352          |
| altricial-FG  | 0.032        | 1            | 0.004        | 0.001        | 0.001          | 0.174          | 0.003          |
| altricial-PT  | 0.976        | 0.004        | 1            | 0.097        | 0.151          | 0.901          | 0.312          |
| precocial-CF  | 0.135        | 0.001        | 0.097        | 1            | 0.753          | 0.193          | 0.510          |
| intermediate-CF | 0.188        | 0.001        | 0.151        | 0.753        | 1              | 0.221          | 0.664          |
| intermediate-FG | 0.929        | 0.174        | 0.901        | 0.193        | 0.221          | 1              | 0.380          |
| intermediate-FS | 0.352        | 0.003        | 0.312        | 0.510        | 0.664          | 0.380          | 1              |
| ul/ta |               |              |              |              |                |                |                |
| altricial-CF  | 1             | 0.564        | 0.920        | 0.101        | 0.867          | 0.413          | 0.686          |
| altricial-FG  | 0.564        | 1            | 0.499        | 0.258        | 0.696          | 0.692          | 0.358          |
| altricial-PT  | 0.920        | 0.499        | 1            | 0.079        | 0.923          | 0.398          | 0.597          |
| precocial-CF  | 0.101        | 0.258        | 0.079        | 1            | 0.016          | 0.612          | 0.006          |
| intermediate-CF | 0.867        | 0.696        | 0.923        | 0.016        | 1              | 0.437          | 0.429          |
| intermediate-FG | 0.413        | 0.692        | 0.398        | 0.612        | 0.437          | 1              | 0.208          |
| intermediate-FS | 0.686        | 0.358        | 0.597        | 0.006        | 0.429          | 0.208          | 1              |
| mn/ta |               |              |              |              |                |                |                |
| altricial-CF  | 1             | 0.091        | 0.979        | 0.937        | 0.449          | 0.602          | 0.384          |
| altricial-FG  | 0.091        | 1            | 0.017        | 0.079        | 0.016          | 0.477          | 0.008          |
| altricial-PT  | 0.979        | 0.017        | 1            | 0.900        | 0.349          | 0.569          | 0.336          |
| precocial-CF  | 0.937        | 0.079        | 0.900        | 1            | 0.286          | 0.503          | 0.306          |
| intermediate-CF | 0.449        | 0.016        | 0.349        | 0.286        | 1              | 0.197          | 0.898          |
| intermediate-FG | 0.602        | 0.477        | 0.569        | 0.503        | 0.197          | 1              | 0.203          |
| intermediate-FS | 0.384        | 0.008        | 0.336        | 0.306        | 0.898          | 0.203          | 1              |
| fprim/ta     | altricial-CF | altricial-FG | altricial-PT | precocial-CF | intermediate-CF | intermediate-FG | intermediate-FS |
|--------------|--------------|--------------|--------------|--------------|----------------|----------------|----------------|
| altricial-CF | 1            | 0.001        | 0.809        | 0.235        | 0.288          | 0.850          | 0.155          |
| altricial-FG | 0.001        | 1            | 0.001        | 0.001        | 0.001          | 0.004          | 0.001          |
| altricial-PT | 0.809        | 0.001        | 1            | 0.098        | 0.164          | 0.741          | 0.063          |
| precocial-CF | 0.235        | 0.001        | 0.098        | 1            | 0.789          | 0.393          | 0.658          |
| intermediate-CF | 0.288    | 0.001        | 0.164        | 0.789        | 1              | 0.491          | 0.453          |
| intermediate-FG | 0.850    | 0.004        | 0.741        | 0.393        | 0.491          | 1              | 0.287          |
| intermediate-FS | 0.155 | 0.001        | 0.063        | 0.658        | 0.453          | 0.287          | 1              |