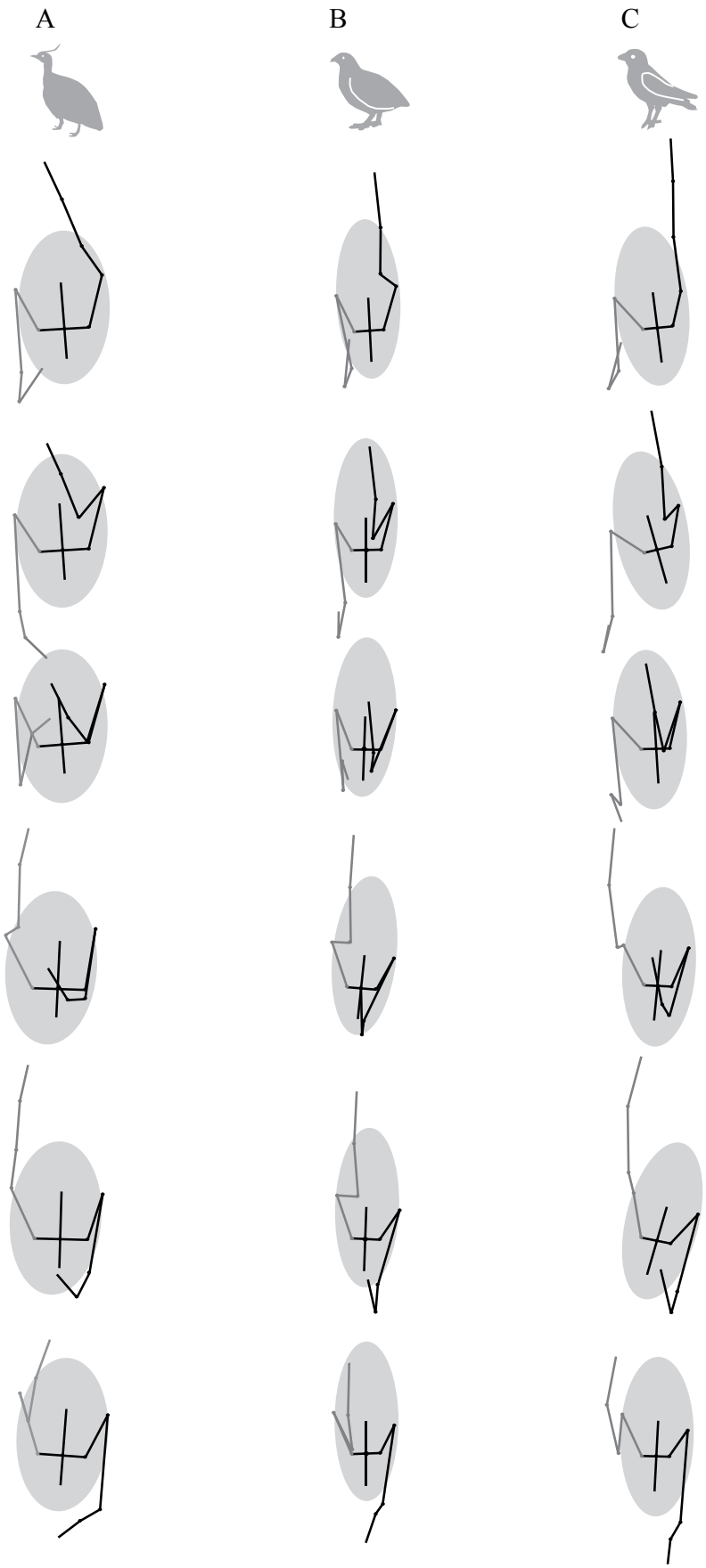

Fig.·S1. Stick figures of the stance phase of the right limb (black) from ventro-dorsal perspective based on an X-ray videographic sequence (Fr=0.06). (A) *Eudromia elegans*, (B) *Coturnix coturnix* and (C) *Corvus monedula*.

Table S1. Kinematic parameters of limb joint angles and their relation to speed during swing

		N	Angle (deg)	Range (deg)	R^2	*b*	*a*
Eudromia elegans							
Hip	Max	94	65.4±8.5	44.2–86.8	0.73**	0.237±0.015	1.82±0.004
	Min	94	40.4±3	32.1–48.2	0.004	0.01±0.015	1.6±0.004
Knee	Max	93	130.9±5.2	107.2–144	0.451**	0.057±0.007	2.12±0.002
	Min	93	50.4±3.1	43.2–55.7	0.007	–0.01±0.012	1.7±0.003
Intertarsal	Max	91	141.4±5.7	124.7–157	0.448**	0.053±0.006	2.15±0.001
	Min	91	66.3±7.8	48.5–81.6	0.322**	0.137±0.021	1.83±0.005
TMTP joint	Max	93	244.4±7.3	224–263	0.015	0.007±0.006	2.39±0.001
	Min	92	156.5±12.8	126–203	0.001	–0.01±0.016	2.2±0.004
Coturnix coturnix							
Hip	Max	84	66.8±5.6	52.4–83.8	0.2**	0.103±0.023	1.847±0.007
	Min	84	40.8±3.4	30.4–53	0.143**	–0.1±0.027	1.59±0.008
Knee	Max	84	131.3±6.3	111.1–148	0.089**	0.04±0.014	2.13±0.004
	Min	84	48.9±3.7	33.3–63	0.004	–0.02±0.036	1.68±0.011
Intertarsal	Max	80	127.6±9	83.2–152.8	0.034*	0.041±0.024	2.11±0.008
	Min	80	51.6±5.1	32.3–70.5	0.006	–0.03±0.039	1.7±0.012
TMTP joint	Max	73	258.7±11.3	227.5–283	0.159**	0.05±0.014	2.42±0.004
	Min	73	157.2±6.4	133.6–172	0.1**	–0.03±0.011	2.19±0.003
Corvus monedula							
Hip	Max	80	73±8.8	57.8–93.6	0.481**	0.208±0.025	1.92±0.008
	Min	80	47.3±4.2	34.5–56.3	0.004	–0.02±0.029	1.67±0.01
Knee	Max	81	137.5±7.4	111–155	0.619**	0.119±0.01	2.17±0.003
	Min	81	46.9±4.7	38.5–67.8	0.068*	0.064±0.027	1.69±0.009
Intertarsal	Max	75	145.5±7.2	122.4–158	0.379**	0.084±0.013	2.19±0.004
	Min	75	70.1±3.5	60.2–77.6	0.134**	–0.05±0.014	1.83±0.005
TMTP joint	Max	70	222.5±12.9	192–250.7	0.607**	0.113±0.011	2.38±0.004
	Min	71	151.3±8.1	110.7187	0.013	0.018±0.019	2.18±0.007

N, number of trials; TMTP, tarsometatarso-phalangeal. Angle is given as mean ± s.d.
Regression equation: $\ln y = \ln bx + a$, where *x* is speed; coefficients are presented ± s.e.
*$P<0.05$; **$P<0.01$.

Table S2. Spatio-temporal gait parameters and protraction and retraction angles of the species

Parameter	*N*	Mean (±s.d.)	Range	R^2	*b*	*a*
Eudromia elegans						
Stride duration (s)	101	0.36±0.12	0.22–0.75	0.968**	–0.527±0.01	–0.489±0.003
Stance duration (s)	97	0.24±0.11	0.10–0.56	0.981**	–0.763±0.011	–0.723±0.003
Swing duration (s)	97	0.13±0.02	0.10–0.2	0.362**	–0.127±0.017	–0.911±0.005
Frequency (Hz)	101	3±0.87	1.3–4.6	0.969**	0.527±0.01	0.498±0.003
Duty factor (%)	97	63±9	45–80	0.882**	–0.233±0.009	1.776±0.002
Stride length (m)	101	0.3±0.08	0.16–0.51	0.96**	0.471±0.01	–0.498±0.003
Step length (m)	97	0.18±0.03	0.12–0.22	0.833**	0.237±0.011	–0.723±0.003
Swing length (m)	97	0.12±0.06	0.04–0.26	0.964**	0.873±0.017	–0.911±0.005
Protraction angle (deg)	86	47.8±1.9	43.6–51.8	0.015	–0.01±0.009	1.68±0.002
Retraction angle (deg)	90	25.6±5.3	8.2–35.5	0.773	0.479±0.028	1.41±0.006
Coturnix coturnix						
Stride duration (s)	89	0.4±0.1	0.29–0.89	0.850**	–0.519±0.023	–0.519±0.006
Stance duration (s)	89	0.29±0.09	0.16–0.75	0.874**	–0.707±0.029	–0.712±0.008
Swing duration (s)	89	0.11±0.01	0.08–0.15	0.019	–0.049±0.037	–0.959±0.01
Frequency (Hz)	89	2.63±0.47	1.1–3.5	0.849**	0.521±0.023	0.519±0.006
Duty factor (%)	89	70±5	56.4–83.8	0.632**	–0.188±0.015	1.807±0.004
Stride length (m)	89	0.24±0.04	0.14–0.34	0.836**	0.477±0.022	–0.519±0.006
Step length (m)	89	0.18±0.02	0.10–0.23	0.543**	0.293±0.029	–0.712±0.008
Swing length (m)	89	0.08±0.02	0.03–0.14	0.88**	0.949±0.037	–0.958±0.01
Protraction angle (deg)	95	49.7±2.2	43.6–56.3	0.219	0.058±0.011	1.71±0.004
Retraction angle (deg)	86	25.7±7.6	3.8–39.1	0.644	0.868±0.07	1.57±0.021
Corvus monedula						
Stride duration (s)	93	0.45±0.08	0.24–0.7	0.809**	–0.494±0.025	–0.483±0.008
Stance duration (s)	93	0.32±0.08	0.14–0.6	0.852**	–0.717±0.031	–0.701±0.010
Swing duration (s)	93	0.13±0.02	0.09–0.18	0.012	0.041±0.039	–0.872±0.012
Frequency (Hz)	93	2.32±0.45	1.4–4.2	0.81**	0.495±0.025	0.484±0.008
Duty factor (%)	93	70±6.5	56–87	0.73**	–0.227±0.015	1.782±0.004
Stride length (m)	93	0.25±0.05	0.12–0.34	0.817**	0.507±0.025	–0.483±0.008
Step length (m)	93	0.17±0.02	0.10–0.23	0.458**	0.28±0.032	–0.702±0.01
Swing length (m)	93	0.08±0.03	0.02–0.14	0.887**	1.04±0.039	–0.872±0.012
Protraction angle (deg)	64	49 ±2.2	41.8–52	0.308	0.064±0.012	1.7±0.004
Retraction angle (deg)	51	22.9±9.2	–2.4–38.3	0.653	1.43±0.149	1.7±0.049

N, number of trials.
Regression equation: $\ln y = \ln bx + a$, where *x* is speed; coefficients are presented ± s.e.
*$P<0.05$; **$P<0.01$.