

**Table S1** Details of studies used in analysis

<b>Authors</b>	<b>Climate variable</b>	<b>Duration (years)</b>	<b>Taxonomic grouping</b>	<b>Latitude</b>
Aanes <i>et al.</i> 2000	Temperature & Precipitation	21	Mammal	78.9°N
Aanes <i>et al.</i> 2002	Temperature & Precipitation	21	Mammal	78.9°N
Adamík & Král 2008	Temperature	26	Bird & Mammal	49.5°N
Ahola <i>et al.</i> 2009	Temperature	56	Bird	60.8°N
Altwegg <i>et al.</i> 2006	Precipitation	67	Bird	46.8°N
Anders & Post 2006	Temperature	37	Bird	37.1°N
Artemyev 2008	Temperature	27	Bird	60.5°N
Askeyev <i>et al.</i> 2005	Temperature & Precipitation	55	Plant	55.5°N
Bender & Weisenberger 2005	Precipitation	36	Mammal	33.5°N
Cattadori <i>et al.</i> 2005	Temperature & Precipitation	155	Bird	54°N
Chase <i>et al.</i> 2005	Temperature & Precipitation	21	Bird	38.1°N
Clews <i>et al.</i> 2010	Temperature & Precipitation	20	Fish	52.3°N
Clotfelter <i>et al.</i> 2007	Temperature & Precipitation	20	Bird	37.2°N
Conner <i>et al.</i> 2005	Precipitation	20	Bird	31.2°N
Conrad <i>et al.</i> 2003	Temperature & Precipitation	32	Invertebrate	52.8°N
Coughenour & Singer 1996	Temperature & Precipitation	23	Mammal	45°N
Cowley & Siriwardena 2005	Temperature & Precipitation	25	Bird	53.2°N
Dolonec 2007	Temperature	23	Bird	46°N
Dunham <i>et al.</i> 2011	Precipitation	20	Mammal	21.3°N
Dyrcz & Halupka 2009	Temperature & Precipitation	38	Bird	51.5°N
Falls <i>et al.</i> 2007	Temperature	36	Mammal	45.4°N
Fox & Gitay 1991	Temperature & Precipitation	27	Bird	56.3°N
Friedenberg <i>et al.</i> 2008	Temperature	39	Invertebrate	31.5°N
Geisser & Reyer 2005	Precipitation	25	Mammal	47.6°N
Gerlach 2007	Precipitation	102	Invertebrate	9.4°S
Gerten & Adrian 2002	Temperature	20	Invertebrate	52.3°N
Gilbert & Raedeke 2004	Temperature & Precipitation	20	Mammal	46.8°N
Glenn <i>et al.</i> 2011a	Temperature & Precipitation	21	Bird	45.7°N
Glenn <i>et al.</i> 2011b	Temperature & Precipitation	20	Bird	43.9°N
Grau & Veblen 2000	Precipitation	95	Plant	27°S
Greenwood & Baillie 1991	Temperature & Precipitation	26	Bird	52.4°N
Halkka <i>et al.</i> 2006	Temperature & Precipitation	35	Invertebrate	59.5°N

<b>Authors</b>	<b>Climate variable</b>	<b>Duration (years)</b>	<b>Taxonomic grouping</b>	<b>Latitude</b>
Halupka <i>et al.</i> 2008	Temperature	37	Bird	51.5°N
Hari <i>et al.</i> 2006	Temperature	25	Fish	46.8°N
Hersteinsson <i>et al.</i> 2009	Temperature	27	Mammal	65°N
Hone & Clutton-Brock 2007	Precipitation	27	Mammal	57°N
Hudon <i>et al.</i> 2010	Temperature & Precipitation	20	Fish	45.5°N
Hušek & Adamík 2008	Temperature & Precipitation	41	Bird	50.2°N
Jovani & Tella 2004	Temperature & Precipitation	23	Bird	37°N
Kangur <i>et al.</i> 2007	Temperature	74	Fish	58.7°N
Kardol <i>et al.</i> 2010	Temperature	39	Plant	35.6°N
Kelsall <i>et al.</i> 2004	Temperature & Precipitation	81	Plant	43°N
Kharuk <i>et al.</i> 2005	Temperature	34	Plant	64°N
Klaus 2007	Temperature & Precipitation	32	Bird	49°N
Kivana <i>et al.</i> 2004	Temperature & Precipitation	132	Mammal	48.2°N
Kullman 2007	Temperature	32	Plant	63.1°N
Laaksonen <i>et al.</i> 2006	Temperature & Precipitation	59	Bird	60.3°N
Layne & Abrahamson 2004	Temperature & Precipitation	28	Plant	27.1°N
Lehikoinen <i>et al.</i> 2009	Temperature & Precipitation	25	Bird	63°N
Lehikoinen <i>et al.</i> 2011	Temperature	32	Bird	63°N
Lewellen & Vessey 1998a	Temperature & Precipitation	23	Mammal	41.3°N
Lewellen & Vessey 1998b	Temperature & Precipitation	23	Mammal	41.3°N
Li & Brown 1999	Temperature & Precipitation	25	Bird	42°N
Lima <i>et al.</i> 2008	Precipitation	23	Mammal	31.6°N
Lloyd & Fastie 2003	Temperature	198	Plant	64.2°N
Lusk <i>et al.</i> 2002	Temperature & Precipitation	20	Bird	31.9°N
Macdonald <i>et al.</i> 2010	Temperature & Precipitation	21	Mammal	51.5°N
Magnusson <i>et al.</i> 2010	Precipitation	22	Mammal	2.3°S
Mallory <i>et al.</i> 2003	Temperature & Precipitation	27	Bird	51°N
Manca & DeMott 2009	Temperature	22	Invertebrate	46°N
Manca <i>et al.</i> 2007	Temperature	22	Invertebrate	46°N
Martin 2007	Precipitation	20	Bird & Plant	34.4°N
Massol <i>et al.</i> 2007	Temperature	31	Fish	46.6°N
Matthysen <i>et al.</i> 2011	Temperature	29	Bird	51.2°N
McGrath & Lorenzen 2010	Temperature & Precipitation	22	Amphibian	52.8°N
Meyer <i>et al.</i> 1998	Precipitation	27	Amphibian	47°N

<b>Authors</b>	<b>Climate variable</b>	<b>Duration (years)</b>	<b>Taxonomic grouping</b>	<b>Latitude</b>
Morrisette <i>et al.</i> 2010	Temperature & Precipitation	30	Bird	73.1°N
Moss <i>et al.</i> 2001	Temperature	24	Bird	52.2°N
Murray <i>et al.</i> 2006	Temperature & Precipitation	40	Mammal	48.5°N
Mysterud <i>et al.</i> 2007	Temperature & Precipitation	50	Mammal	52.5°N
Nevoux <i>et al.</i> 2008	Precipitation	22	Bird	45.9°N
Nilsson <i>et al.</i> 2011	Temperature & Precipitation	31	Bird	58.2°N
Ogutu & Owen-Smith 2003	Precipitation	20	Mammal	23.8°S
Ogutu & Owen-Smith 2005	Precipitation	32	Mammal	23.8°S
Owen-Smith & Mills 2006	Precipitation	20	Mammal	23.8°S
Parker 1993	Temperature & Precipitation	54	Plant	32.1°N
Paxton <i>et al.</i> 2004	Temperature	47	Fish	54.2°N
Paxton <i>et al.</i> 2009	Temperature & Precipitation	49	Fish	54.2°N
Peach <i>et al.</i> 1994	Temperature & Precipitation	59	Bird	52.8°N
Peach <i>et al.</i> 1995	Temperature & Precipitation	21	Bird	53.2°N
Pearce-Higgins <i>et al.</i> 2009	Temperature & Precipitation	28	Bird	53.2°N
Pearce-Higgins <i>et al.</i> 2010	Temperature	34	Bird	53.3°N
Pellet <i>et al.</i> 2006	Temperature & Precipitation	22	Amphibian	46.5°N
Pérez-Ramos <i>et al.</i> 2010	Temperature & Precipitation	26	Plant	43.4°N
Piha <i>et al.</i> 2007	Temperature & Precipitation	20	Bird	61.1°N
Piovesan & Adams 2001	Precipitation	105	Plant	46.6°N
Potti 2009	Temperature	24	Bird	41°N
Pucek <i>et al.</i> 1993	Temperature & Precipitation	21	Mammal	52.4°N
Pukkaka <i>et al.</i> 2010	Temperature & Precipitation	50	Plant	65°N
Reading 2007	Temperature	23	Amphibian	50.4°N
Redfern & Hunter 2005	Temperature & Precipitation	36	Invertebrate	50.5°N
Rehmeier <i>et al.</i> 2005	Temperature & Precipitation	20	Mammal	39.1°N
Reif <i>et al.</i> 2010	Temperature	26	Bird	49.8°N
Robillard & Fox 2006	Temperature	24	Fish	44.2°N
Robinson <i>et al.</i> 2004	Temperature & Precipitation	37	Bird	54°N
Robinson <i>et al.</i> 2007	Temperature & Precipitation	35	Bird	54°N
Roy <i>et al.</i> 2001	Temperature & Precipitation	22	Invertebrate	52.8°N
Schaub <i>et al.</i> 2011	Temperature & Precipitation	26	Bird	48.4°N
Schorcht <i>et al.</i> 2009	Temperature	20	Mammal	50.4°N
Schwartz & Armitage 2005	Temperature & Precipitation	29	Mammal	38.9°N

<b>Authors</b>	<b>Climate variable</b>	<b>Duration (years)</b>	<b>Taxonomic grouping</b>	<b>Latitude</b>
Selås 2001	Temperature & Precipitation	65	Bird	58.7°N
Sherriff <i>et al.</i> 2011	Temperature & Precipitation	242	Invertebrate	60°N
Shone <i>et al.</i> 2006	Temperature & Precipitation	34	Invertebrate	38.6°N
Simpson <i>et al.</i> 2007	Precipitation	27	Mammal	30.7°N
Smatas <i>et al.</i> 2008	Temperature & Precipitation	28	Invertebrate	55.4°N
Sokolov <i>et al.</i> 2002	Temperature	32	Bird	55.2°N
Solberg <i>et al.</i> 2001	Temperature & Precipitation	21	Mammal	78°N
Surmacki & Stepniewski 2007	Temperature & Precipitation	20	Bird	51.5°N
Suski & Ridgway 2007	Temperature	22	Fish	45.4°N
Szeicz & MacDonald 1995	Temperature	310	Plant	64.5°N
Thingstad <i>et al.</i> 2006	Temperature & Precipitation	20	Bird	63°N
Tratalos <i>et al.</i> 2010	Precipitation	58	Invertebrate	19.5°N
Visser <i>et al.</i> 2006	Temperature	20	Bird	52.1°N
Vucetich & Peterson 2004	Temperature & Precipitation	40	Mammal	48°N
Wang <i>et al.</i> 2002a	Temperature & Precipitation	25	Bird	40.3°N
Wang <i>et al.</i> 2002b	Temperature & Precipitation	35	Mammal	40.3°N
Watson <i>et al.</i> 1998	Temperature & Precipitation	53	Bird	57.1°N
Watson <i>et al.</i> 2000	Temperature	50	Bird	57.1°N
Wedekind & Kueng 2010	Temperature	39	Fish	46.5°N
Whitfield <i>et al.</i> 2008	Temperature & Precipitation	24	Bird	53.3°N
Whittaker & Tribe 1998	Temperature & Precipitation	21	Invertebrate	54.7°N
Wilson <i>et al.</i> 2011	Temperature	26	Bird	37.1°N
Winkler <i>et al.</i> 2002	Temperature	21	Bird	37.1°N
Woodward <i>et al.</i> 1994	Temperature & Precipitation	30	Plant	45.2°N
Wool 2002	Temperature & Precipitation	21	Invertebrate	32.1°N
Wrege <i>et al.</i> 2006	Temperature	21	Bird	38°N
Wright <i>et al.</i> 2009	Temperature & Precipitation	34	Bird	52.3°N
Yalden & Pearce-Higgins 1997	Temperature & Precipitation	24	Bird	53.2°N
Yamamura <i>et al.</i> 2006	Temperature	52	Invertebrate	36.2°N
Zhang <i>et al.</i> 2010	Precipitation	26	Mammal	28.9°N
Zhang <i>et al.</i> 2003	Precipitation	51	Mammal	42.5°N
Zmihorski <i>et al.</i> 2006	Temperature & Precipitation	24	Bird	52°N

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