

S2 Table. Details and references of ant datasets excluded from analyses. Datasets that were not used in analyses, including the study site (reference), the reported diversity pattern (D: decreasing; I: Increasing; LP: low-plateau; MP: mid-peak, and No Pattern), the data scale (local or regional), and the reason(s) the study was not included (D: large portion of gradient had anthropogenic disturbance; G: sampling gaps between sites were >500m; I: insufficient or no elevational diversity data; L: no sampling in the lowest 400m; M: multiple gradients or sites too far apart; P: <70% of elevational gradient sampled and not primarily upper elevations where diversity had already decreased monotonically; R: repeated data or non-independent transect; S: sampling effort minimal or biased elevationally).

Study Site (Reference)	Reported Pattern	Scale	Exclusion Reason
Alps, Tirol, Austria (Kofler 1978)	---	Regional	I
Andes, Colombia (van der Hammen & Ward 2005)	MP	Local	L, S
Andes, Lambayeque, Peru (Delgado et al. 2008)	D	Local	L, P, S
Andes, Venezuela (Janzen 1976)	LP	Local	G
Andohahela, Madagascar (Fisher 1999)	MP	Local	P
Andringitra, Madagascar (Fisher 1996)	D	Local	L, P
Appalachian Mtns, NC, VA, MD; USA (McCoy 1990)	---	Local	I
Appalachian Mtns, VA, USA (Wang et al. 2001)	D	Local	I
Cederburg Wilderness, South Africa (Botes et al. 2006)	MP	Local	L
Chiricahua Mtns, AZ, USA (Anderson 1997)	MP	Local	S
Colorado, USA (Sanders 2002)	MP	Regional	R
Coastal Cordillera, Venezuela (Lattke & Riera-Valera 2012)	---	Local	I, L, P
Costa Rica (Janzen 1973)	---	Local	I, G
Eastern Australia (Majer et al. 2001)	D	Local	G, M
Georgia (Chaladze 2012)	MP	Regional	I
Georgia, USA (Ipser et al. 2004)	MP	Regional	S
Gunung Mulu, Sarawak (Collins 1980)	---	Local	I
Himalayas, India (Bharti 2008)	---	Regional	I, L
Himalayas, Jammu-Kashmir, India (Bharti & Sharma 2009)	---	Local	I, G, L, P
Himalayas, Jammu-Kashmir, India (Bharti et al. 2013)	MP	Local	G
Imatong Mtns, Sudan (Weber 1943)	---	Local	I
Kinabalu, Malaysia (Brühl et al. 1999)	D	Local	L, S
Kinabalu, Malaysia (Malsch et al. 2008)	D	Local	L
Maloti-Drakensberg, South Africa (Bishop et al. 2014)	MP	Local	I
Manongarivo, Madagascar (Fisher 2002)	LP	Local	S
Minorca, Spain (Guillem 2009)	---	Local	I, P
Monts Doudou, Gabon (Fisher 2004)	No Pattern	Local	D, S
Nevada, USA (Sanders 2002)	MP	Regional	R
Northeastern USA (Del Toro 2013)	---	Local	M
Okinawa, Japan (Ito et al. 1998)	---	Local	I, P, S
Shoshone Mtns, NV, USA (MontBlanc et al. 2007)	MP	Local	L, P
Sierra Nevada de Santa Marta, Colombia (Guerrero & Sarmiento 2010)	D	Local	L, P
Smoky Mtns, TN, USA (Cole 1940)	LP	Regional	R
Smoky Mtns, TN, USA (Geraghty et al. 2007)	D	Local	R

Study Site (Reference)	Reported Pattern	Scale	Reason for Exclusion
Smoky Mtns, TN, USA (Sanders et al. 2007)	D	Local	R
Smoky Mtns, TN, USA (Whittaker 1952)	---	Local	I
Smoky Mtns, TN, USA (Zelikova et al. 2008)	D	Local	I, R
South Korea (Kwon et al. 2014)	D	Local	S
South Sinai, Egypt (Orabi et al. 2011)	No Pattern	Local	G
South Tirol, Italy (Glaser 2008)	---	Regional	I
Spring Mtns, NV, USA (Sanders 2003)	I	Local	P
Spring Mtns, NV, USA (Sanders 2003)	I	Local	P
Spring Mtns, NV, USA (Sanders 2003)	MP	Local	P
Tatra Mtns, Poland (Woyciechowski 1993)	---	Local	I, L, P
Utah, USA (Sanders 2002)	MP	Regional	R
Volcan Barva, Costa Rica (Atkin & Proctor 1988)	---	Local	I
Volcan Barva, Costa Rica (Colwell et al. 2008)	LP	Local	R

S2: References

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