Appendix 1. Descriptions of the six field sites in which surveys were conducted, and additional information on sampling protocols.

(1) *Guyana, April 2000* – rainforest-savannah interface at Kumu, near Lethem. The area is periodically disturbed by local subsistence agriculture and occasional natural and human-induced fires. The forest is generally not tall (20-30m) and dominant trees include species of Anacardiaceae, Lecythidaceae, Mimosoideae, Clusiaceae, Rubiaceae, Arecaceae, Bignoniaceae, and Burseraceae. The savannah is dominated by a range of families including Poaceae and Fabaceae, and by scattered trees such as *Curatella americana* (Dilleniaceae). There was clear floristic overlap between the rainforest and the savannah plant communities, with a number of "savannah" species being found within the forest. This, combined with the geographic proximity of our observations (all within 1km of camp), suggests movement of pollinators between the rainforest and the savannah, and for the purposes of this analysis we therefore treat this as a single community. Plants were scored by J. Ollerton, L. Cranmer, D. Gopaul, S. Kellie, and B. Henderson.

(2) *Venezuela, May 2000* – dry coastal scrub with adjacent gallery secondary rainforest, semi-deciduous forest on hill slopes, and mangrove strand vegetation at Bahía de Petanamo, west of Caracas. Dominant trees, shrubs and climbers in the dry coastal scrub included species of Bombacaceae, Burseraceae, Mimosoideae, Cactaceae, Caesalpinioideae and an *Agave* sp. (Agavaceae). Plants were scored by J. Ollerton, L. Cranmer, and B. Henderson.

(3) *South Africa, January 2001* - moist montane grassland on the farm Wahroonga that is formally protected as a South African Natural Heritage site. Dominant families include Poaceae, Asteraceae, Iridaceae, and Apocynaceae subfamily Asclepiadoideae. The grasslands at this site have never been ploughed and

are not grazed by domestic livestock. Further details of this site are given in Ollerton *et al.* (2003). Plants were scored by J. Ollerton, L. Cranmer, and C. Peter.

(4) *Colorado, United States of America, June-August 2000 and 2001* - Virginia Basin, above the Rocky Mountain Biological Laboratory, a large and continuous high elevation subalpine meadow community bordered by coniferous forest and (at the upper reaches) by krummholz (*Picea engelmannii*) and talus slopes. These meadows are dominated by Poaceae and by long-lived herbaceous perennials in families such as Asteraceae, Rosaceae, and Scrophulariaceae *s.l.* Plant-pollinator interactions were recorded along an elevational gradient through the basin by R. Alarcón in 2000 and by research assistants trained by R. Alarcón in 2001. Plants were scored by R. Alarcón, N. M. Waser, and M. V. Price.

(5) *California, United States of America, June-August 2001, 2002, and 2003* - a series of four montane meadow communities (< 2.5km apart) located in openings within yellow pine (*Pinus jeffreyi* and *Pinus ponderosa*) forests of the San Bernardino Mountains, above the Los Angeles basin. Dominant families include Poaceae, Asteraceae, Fabaceae and Scrophulariaceae *s.l.* Since pollinators were observed to fly between adjacent meadows through riparian woodlands, these meadows were treated as a single community for the analysis. Plants were scored by R. Alarcón.

(6) Perú, January 2002 - high altitude community in the Vilcanota Highlands at Mantanay (Province of Urubamba). The valley contained a mixture of arid montane scrub, semi-humid scrub, montane forest, and riparian thickets. Dominant large shrubs and small trees included *Duranta mandonii* (Verbenaceae), diverse genera of Asteraceae, *Prunus serotina* (Rosaceae) and, higher up the valley, *Polylepis* sp. (Rosaceae). Plants were scored by S. Watts and J. Ollerton.

Sampling protocols – the very different community types included in these surveys (ranging from tropical rainforest to temperate grassland) meant that a single, standardized survey method could not be used. Instead, we spent as much time as possible (see Table 1) within each community recording all plants in flower and accessible to us. These flowers were scored for each of the 41 floral traits; prior to this, discussion among the field workers ensured comparability of scoring for particular traits. For example, each of us was familiar with the distinction between open- and bell-shaped flower morphology and narrow versus wide corolla tubes. The majority of the traits were self evident for researchers experienced in pollination field biology; of the more subjective traits, "mechanically strong" was assessed by the thickness and robustness of floral tissues whilst nectar volume was semi-quantitatively described by dissecting flowers and tasting for presence of sugar, or by probing with microcapilliary tubes and checking for sugar concentration using a sugar refractometer. Visitors to flowers were recorded opportunistically in the communities as they were observed and classified as pollinators only if they met the criteria as set out in Methods (but see Alarcón et al. 2008 for sampling methods in California). Most of the sampling was done from first light until dusk, with some limited after-dark surveys in Guyana and Perú. The Colorado community was also sampled at night, but no insects were observed flying, probably due to cold temperatures. The predominantly nocturnal syndromes are therefore likely to be under-sampled, but we included these when creating the NMS floral space, otherwise plants that are adapted to such pollinators and that fit into these syndromes could not be accommodated. In addition, where possible our surveys were augmented by observations of some species made in those communities by colleagues in that year (e.g. S. D. Johnson in the South African community and A. Erhardt in the Colorado community). However, we

specifically did not include previously published observations for those species in different communities and years, because of the known spatio-temporal variation in abundance and identity of pollinators.

Differences in habitat structure, the variable number of field workers who worked on each survey, and the fact that we were undertaking other field work at these sites in addition to the community surveys, means that sampling effort *per se* for pollinator surveys in each community is difficult to estimate accurately. However, the approximate number of weeks of surveying for each is as follows: Guyana (4), Venezuela (2), South Africa (2), Colorado (12), California (21), Perú (2).