Appendix I

Sample sizes for SVD and pollen germination methods. Bold text shows taxonomic groupings used in models. Groups are broken down into lower taxonomic classification for information where possible. Red text highlights taxa where insufficient data were collected for analysis

|  |  |  |
| --- | --- | --- |
|   | SVD | Pollen germination |
| **Controls** | **39** | **27** |
|  |  |  |
| ***Bombus*** | **23** | **17** |
| *B. terrestris* | 13 | 9 |
| *B. lapidarius* | 7 | 8 |
| *B. pascuorum* | 1 | 2 |
|  |  |  |
| ***Episyrphus balteatus*** | **31** | **23** |
|  |  |  |
| ***Eristalis*** | **28** | **20** |
|  |  |  |
| ***Other hoverflies*** | **19** | **11** |
| Syrphini | 14 | 9 |
| Bacchini | 5 | 2 |
|  |  |  |
| *Apis mellifera* | 3 | 1 |
| *Andrena sp.* | 2 | 1 |
| *Sphecodes sp.* | 0 | 2 |
| *Lasioglossum sp.* | 2 | 0 |

Appendix II

Full and minimum (final) models

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Fixed effects**  | **Random effects (intercept)** | **Distribution**  | **AIC** | **Residual degrees of freedom** |
| **Pollinator effectiveness (PE)** **field data** |  |  |  |  |
| SVD |  |  |  |  |  |
| Full model | visitor species, visit length, time of visit, wind speed | date, visitor individual, plant  | Negative binomial  | 1388 | 127 |
| Minimum model  | visitor species, wind speed |  | 1378 | 133 |
|  |  |  |  |  |  |
| Papilla cells |  |  |  |  |  |
| Full model | visitor species, wind speed, time of visit | date, visitor individual, plant  | Negative binomial  | 1018 | 87 |
| Minimum model  | visitor species  | plant |  | 1014 | 90 |
|  |  |  |  |  |  |
| Pollen germination  |  |  |  |  |  |
| Full model | visitor species, wind speed | date, visitor individual, plant  | Poisson  | 306 | 88 |
| Minimum model  | visitor species  | date, visitor individual | 302 | 90 |
|  |  |  |  |  |  |
| **Manual Pollination**  |  |  |  |  |  |
| Pollen germination |  |  |  |  |  |
| Full model | time of pollination, self or cross pollination | date, plant | Negative binomial  | 124 | 15 |
| Minimum model  | self or cross pollination  |  | 119 | 19 |
|  |  |  |  |  |  |
| Papilla cells |  |  |  |  |  |
| Full model | time of pollination, self or cross pollination | date, plant | Negative binomial  | 229 | 15 |
| Minimum model  | self or cross pollination  |   | 224 | 19 |

 Random effects were removed if they had no effect on the model estimates.