

TABLE S1 | Study species and measured data. Study species in alphabetic order. For methods, refer to the main section of the text.

[extra .csv file]

TABLE S2 | PGLMM for mean nectar reward of single bagged flowers.

Parameter	Variance	SD	Estimate	SE	Z	P
Mean nectar reward (n=105)						
*Species	0.427	0.653				
*Species_	0.059	0.243				
Color Contrast			-0.211	0.091	-2.33	<0.05
Fl/Inflorescence			-0.205	0.088	-2.32	<0.05
Green Contrast			0.019	0.102	0.19	0.85
Brightness			0.034	0.099	0.34	0.73

* Denotes terms that were entered as random factors; _ indicates that a phylogenetic covariance matrix was used in the random term. Continuous parameters were scaled before model generation.

TABLE S3 | PGLMM for mean nectar reward of single open flowers.

Parameter	Variance	SD	Estimate	SE	Z	P
Mean nectar reward (n=105)						
*Species	0.244	0.494				
*Species_	0.079	0.281				
Color Contrast			-0.159	0.081	-1.96	0.05
Fl/Inflorescence			-0.175	0.079	-2.22	<0.05
Green Contrast			0.012	0.093	0.13	0.90
Brightness			-0.040	0.090	-0.45	0.65

* Denotes terms that were entered as random factors; _ indicates that a phylogenetic covariance matrix was used in the random term. Continuous parameters were scaled before model generation.

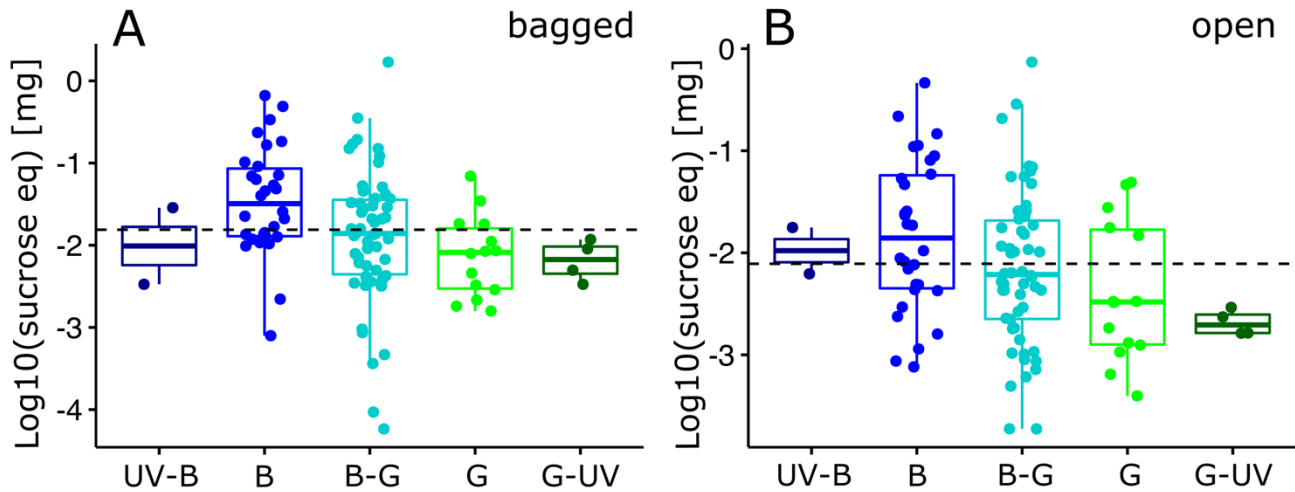


FIGURE S1 | Nectar standing crop of alpine flowering plants (individual flowers). Log10-transformed mean reward quantity, expressed as mg sucrose equivalent per flower for bumble bee visited plant species ($N = 105$). Reward quantity was measured for **(A)** bagged flowers and **(B)** open flowers. Box-plots indicate the median (line) and interquartile range (IQR, i.e. Q25-Q75; box). Lower and upper whiskers indicate $Q25-1.5 \cdot IQR$ and $Q75+1.5 \cdot IQR$, respectively. The horizontal dashed line indicates the overall mean. Individual data points have been added with random x-axis jitter. X-axis categories are the five hexagon categories used in the analysis (see **Figure 1** in the main text; UV-B: UV-blue, B: blue, B-G: blue-green, G: green, G-UV: green-UV). For statistics, see main text.

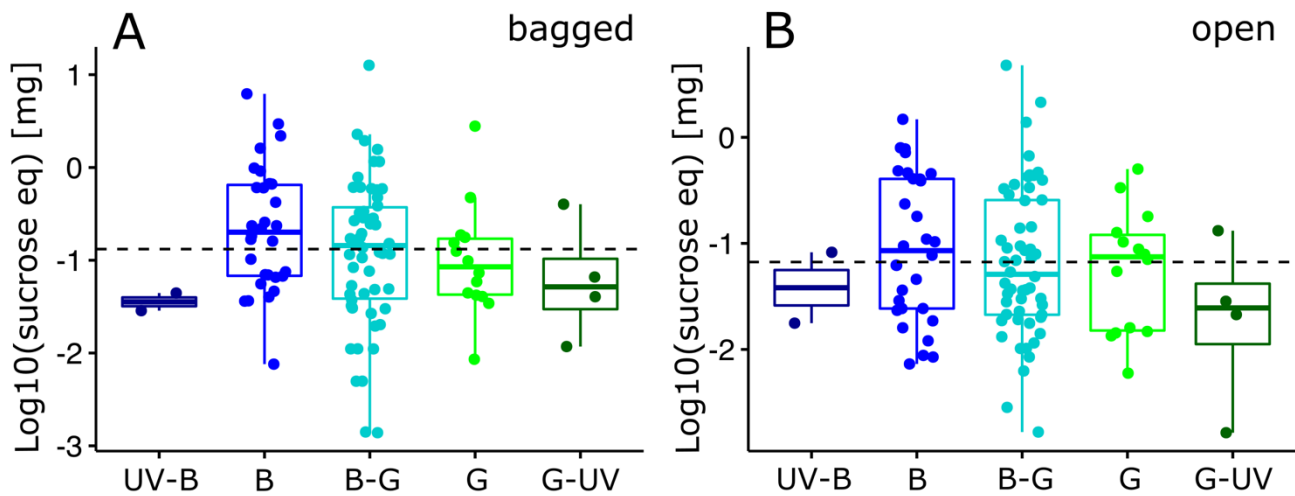


FIGURE S2 | Nectar standing crop of alpine flowering plants (inflorescences). Log10-transformed mean reward quantity, expressed as mg sucrose equivalent per inflorescence for bumble bee visited plant species ($N = 105$). Reward quantity was measured for **(A)** bagged inflorescences and **(B)** open inflorescences. Box-plots indicate the median (line) and interquartile range (IQR, i.e. Q25-Q75; box). Lower and upper whiskers indicate $Q25-1.5 \cdot IQR$ and $Q75+1.5 \cdot IQR$, respectively. The horizontal dashed line indicates the overall mean. Individual data points have been added with random x-axis jitter. X-axis categories are the five hexagon categories used in the analysis (see **Figure 1** in the main text; UV-B: UV-blue, B: blue, B-G: blue-green, G: green, G-UV: green-UV). For statistics, see main text.

Supplementary Data

PHYLOGENETIC TREE 1 | Phylogenetic tree in .nex format used for the analysis.

#NEXUS

BEGIN TAXA;

DIMENSIONS NTAX = 105;

TAXLABELS

Aconitum_degenii

Aconitum_lycoctonum

Aconitum_napellus

Aconitum_variegatum

Adenostyles_alliariae

Ajuga_pyramidalis

Allium_victorialis

Anthyllis_vulneraria

Arctostaphylos_uva-ursi

Arnica_montana

Astragalus_alpinus

Astragalus_frigidus

Bartsia_alpina

Calluna_vulgaris

Campanula_barbata

Campanula_cochleariifolia

Campanula_scheuchzeri

Carduus_defloratus

Carduus_personata

Carlina_acaulis

Centaurea_jacea

Centaurea_pseudophrygia

Centaurea_scabiosa

Cerastium_uniflorum

Cicerbita_alpina

Cirsium_erisithales

Cirsium_heterophyllum

Cirsium_oleraceum

Cirsium_spinosissimum

Clinopodium_alpinum

Crepis_aurea

Crepis_conyzifolia

Crocus_albiflorus

Dryas_octopetala

Epilobium_angustifolium

Erica_carnea

Euphrasia_rostkoviana

Galeopsis_tetrahit

Gentiana_acaulis

Gentiana_asclepiadea

Gentiana_punctata

Gentiana_verna

Gentianella_germanica

Gentianopsis_ciliata

Geranium_sylvaticum

Geum_montanum

Hedysarum_hedysaroides

Hieracium_villosum

Knautia_longifolia
Lamium_album
Lathyrus_pratensis
Leontodon_hispidus
Linaria_alpina
Loiseleuria_procumbens
Lonicera_caerulea
Lotus_corniculatus
Medicago_falcata
Orobanche_alba
Oxytropis_campestris
Pedicularis_foliosa
Pedicularis_tuberosa
Phyteuma_globulariifolium
Phyteuma_hemisphaericum
Phyteuma_orbiculare
Phyteuma_persicifolium
Primula_elatior
Primula_minima
Prunella_grandiflora
Prunella_vulgaris
Pulsatilla_vernalis
Rhinanthus_glacialis
Rhododendron_ferrugineum
Rhododendron_hirsutum
Rubus_idaeus
Salix_breviserrata
Salix_hastata

Salix_waldsteiniana_F
Salix_waldsteiniana_M
Saxifraga_aizoides
Saxifraga_oppositifolia
Scabiosa_lucida
Scorzoneroidees_autumnalis
Sempervivum_montanum
Senecio_ovatus
Silene_aucaulis
Silene_nutans
Silene_vulgaris
Soldanella_alpina
Soldanella_pusilla
Solidago_virgaurea
Taraxacum_alpestre
Thymus_praecox
Trifolium_badium
Trifolium_hybridum
Trifolium_medium
Trifolium_montanum
Trifolium_pallesccns
Trifolium_pratense
Trifolium_pratense_white
Trifolium_repens
Trollius_europaeus
Vaccinium_gaultherioides
Vaccinium_vitis-idaea

Vicia_cracca

Vicia_sepium

;

END;

BEGIN TREES;

TRANSLATE

- 1 Aconitum_degenii,
- 2 Aconitum_lycoctonum,
- 3 Aconitum_napellus,
- 4 Aconitum_variegatum,
- 5 Adenostyles_alliariae,
- 6 Ajuga_pyramidalis,
- 7 Allium_victorialis,
- 8 Anthyllis_vulneraria,
- 9 Arctostaphylos_uva-ursi,
- 10 Arnica_montana,
- 11 Astragalus_alpinus,
- 12 Astragalus_frigidus,
- 13 Bartsia_alpina,
- 14 Calluna_vulgaris,
- 15 Campanula_barbata,
- 16 Campanula_cochleariifolia,
- 17 Campanula_scheuchzeri,
- 18 Carduus_defloratus,
- 19 Carduus_personata,
- 20 Carlina_aucaulis,
- 21 Centaurea_jacea,
- 22 Centaurea_pseudophrygia,

23	<i>Centaurea_scabiosa</i> ,
24	<i>Cerastium_uniflorum</i> ,
25	<i>Cicerbita_alpina</i> ,
26	<i>Cirsium_erisithales</i> ,
27	<i>Cirsium_heterophyllum</i> ,
28	<i>Cirsium_oleraceum</i> ,
29	<i>Cirsium_spinosissimum</i> ,
30	<i>Clinopodium_alpinum</i> ,
31	<i>Crepis_aurea</i> ,
32	<i>Crepis_conyzifolia</i> ,
33	<i>Crocus_albiflorus</i> ,
34	<i>Dryas_octopetala</i> ,
35	<i>Epilobium_angustifolium</i> ,
36	<i>Erica_carnea</i> ,
37	<i>Euphrasia_rostkoviana</i> ,
38	<i>Galeopsis_tetrahit</i> ,
39	<i>Gentiana_acaulis</i> ,
40	<i>Gentiana_asclepiadea</i> ,
41	<i>Gentiana_punctata</i> ,
42	<i>Gentiana_verna</i> ,
43	<i>Gentianella_germanica</i> ,
44	<i>Gentianopsis_ciliata</i> ,
45	<i>Geranium_sylvaticum</i> ,
46	<i>Geum_montanum</i> ,
47	<i>Hedysarum_hedysaroides</i> ,
48	<i>Hieracium_villosum</i> ,
49	<i>Knautia_longifolia</i> ,

50	<i>Lamium_album,</i>
51	<i>Lathyrus_pratensis,</i>
52	<i>Leontodon_hispidus,</i>
53	<i>Linaria_alpina,</i>
54	<i>Loiseleuria_procumbens,</i>
55	<i>Lonicera_caerulea,</i>
56	<i>Lotus_corniculatus,</i>
57	<i>Medicago_falcata,</i>
58	<i>Orobanche_alba,</i>
59	<i>Oxytropis_campestris,</i>
60	<i>Pedicularis_foliosa,</i>
61	<i>Pedicularis_tuberosa,</i>
62	<i>Phyteuma_globulariifolium,</i>
63	<i>Phyteuma_hemisphaericum,</i>
64	<i>Phyteuma_orbiculare,</i>
65	<i>Phyteuma_persicifolium,</i>
66	<i>Primula_elatior,</i>
67	<i>Primula_minima,</i>
68	<i>Prunella_grandiflora,</i>
69	<i>Prunella_vulgaris,</i>
70	<i>Pulsatilla_vernalis,</i>
71	<i>Rhinanthus_glacialis,</i>
72	<i>Rhododendron_ferrugineum,</i>
73	<i>Rhododendron_hirsutum,</i>
74	<i>Rubus_idaeus,</i>
75	<i>Salix_breviserrata,</i>
76	<i>Salix_hastata,</i>
77	<i>Salix_waldsteiniana_F,</i>

78	<i>Salix_waldsteiniana_M,</i>
79	<i>Saxifraga_aizoides,</i>
80	<i>Saxifraga_oppositifolia,</i>
81	<i>Scabiosa_lucida,</i>
82	<i>Scorzoneroides_autumnalis,</i>
83	<i>Sempervivum_montanum,</i>
84	<i>Senecio_ovatus,</i>
85	<i>Silene_aucaulis,</i>
86	<i>Silene_nutans,</i>
87	<i>Silene_vulgaris,</i>
88	<i>Soldanella_alpina,</i>
89	<i>Soldanella_pusilla,</i>
90	<i>Solidago_virgaurea,</i>
91	<i>Taraxacum_alpestre,</i>
92	<i>Thymus_praecox,</i>
93	<i>Trifolium_badium,</i>
94	<i>Trifolium_hybridum,</i>
95	<i>Trifolium_medium,</i>
96	<i>Trifolium_montanum,</i>
97	<i>Trifolium_pallesces,</i>
98	<i>Trifolium_pratense,</i>
99	<i>Trifolium_pratense_white,</i>
100	<i>Trifolium_repens,</i>
101	<i>Trollius_europaeus,</i>
102	<i>Vaccinium_gaultherioides,</i>
103	<i>Vaccinium_vitis-idaea,</i>
104	<i>Vicia_cracca,</i>

;

TREE * UNTITLED = [&R]

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