**Online Supporting Information**

**Appendix S1:**

**Model structures**

**1 - Abundance of other galler species between treatments**

Random intercept model:

Model1 <- glmer.nb (gall\_abundance ~ treatment : gall\_morph + (1 | block))

Random intercept and slope model:

Model1 <- glmer.nb (gall\_abundance ~ treatment : gall\_morph + (treatment | block))

**2 - Abundance of *B. dracunculifoliae* gallers between treatments**

Random intercept model:

Model2 <- glmer.nb (gall\_abundance ~ treatment + (1 | block))

Random intercept and slope model:

Model2 <- glmer.nb (gall\_abundance ~ treatment + (1 + treatment | block))

**3- Parasitism on galler species between treatments**

Random intercept model:

Model3 <- glmer.nb (cbind (success, failure) ~ treatment : gall\_morph + (1 | block))

Random intercept and slope model:   
Model3 <- glmer.nb (cbind (success, failure) ~ treatment : gall\_morph + (1 treatment | block))

**4- Richness of other galler species between treatments**

Random intercept model:

Model4 <- glmer (gall\_richness ~ treatment + (1 | block), family = poisson)

Random intercept and slope model:

Model4 <- glmer (gall\_richness ~ treatment + (1 + treatment | block), family = poisson)

**5 - Richness of parasitoids on all galler species between treatments**

Random intercept model:

Model5 <- glmer (parasit\_richness ~ treatment : gall\_morph + (1 | block), family = poisson)

Random intercept and slope model:

Model5 <- glmer (parasit\_richness ~ treatment : gall\_morph + (1 + treatment | block), family=poisson)

**6 - Network metrics between treatments**

Random intercept model:

Model6 <- lmer (metric ~ treatment \* month \* matrix\_size (1 | block))

Random intercept and slope model:

Model6 <- lmer (metric ~ treatment \* month \* matrix\_size (1+ treatment | block))

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| Table S1. List of morphospecies of galler insects collected on *Baccharis dracunculifolia* D. C. (Asteraceae). The abbreviations correspond to those used in Figure 1. | | | | | |
| **Abbrev.** | **Galler insects** | **Order** | **Family** | **Organ** | **Shape** |
| G.01 | Cecidomyiidae sp1 | Diptera | Cecidomyiidae | Terminal bud | Rosette |
| G.02 | Lepidoptera sp1 | Lepidoptera | - | Stem | Fusiform |
| G.03 | *Asphondylia* sp1 | Diptera | Cecidomyiidae | Lateral bud | Globoid |
| G.04 | Cecidomyiidae sp3 | Diptera | Cecidomyiidae | Leaf | Globoid |
| G.05 | *Asphondylia* sp2 | Diptera | Cecidomyiidae | Terminal bud | Rosette |
| G.06 | Lepidoptera sp2 | Lepidoptera | - | Stem | Globoid |
| G.07 | *Baccharopelma dracunculifoliae* | Hemiptera | Psyllidae | Leaf | Fusiform |
| G.08 | *Geraldesia* sp1 | Diptera | - | Leaf | Lenticular |
| G.09 | Cecidomyiidae sp4 | Diptera | Cecidomyiidae | Leaf and stem | Cylindrical |
| G.10 | Tephritidae sp1 | Diptera | Tephritidae | Terminal bud | Rosette |
| G.11 | Cecidomyiidae sp5 | Diptera | Cecidomyiidae | Stem | Globoid |

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| Table S2. List of parasitoid wasps reared from each gall morphospecies collected in *Baccharis dracunculifolia* D. C. (Asteraceae) in control and exclusion treatments. The abbreviations correspond to those used in Figure 1. Asterisk (\*) indicates gregarious parasitoid species. | | | | | |
| **Treatment** | **Gall Morphospecies** | **Parasitoid Family** | **Parasitoid** | **Abrevv.** | **Specimens** |
|  |  |  |  |  |  |
| Control | G.02 | Encyrtidae | *Anagyrus* sp2 | P.02 | 1 |
|  |  | Eulophidae (Entedoninae) | *Horismenus* sp1\* | P.21 | 16 |
|  |  | Eupelmidae | *Brasema* sp2 | P.06 | 1 |
|  |  | Ichneumonidae | *Clydonium* sp1 | P.09 | 1 |
|  |  |  | *Scambus* sp1 | P.41 | 1 |
|  |  | Pteromalidae | *Pteromalidae* sp2 | P.37 | 1 |
|  | G.03 | Encyrtidae | *Anagyrus* sp1 | P.01 | 1 |
|  |  |  | *Psyllaephagus* sp2 | P.35 | 2 |
|  |  | Eulophidae | *Eulophidae* sp1 | P.13 | 1 |
|  |  |  | *Tetrastichinae* sp3 | P.44 | 38 |
|  |  | Eulophidae (Entedoninae) | *Horismenus* sp2 | P.22 | 2 |
|  |  | Eupelmidae | *Brasema* sp1 | P.05 | 2 |
|  |  |  | *Brasema* sp3 | P.07 | 1 |
|  |  | Eurytomidae | *Eurytoma* sp2 | P.19 | 3 |
|  |  | Torymidae (Megastigminae) | *Torymoides* sp2 | P.48 | 11 |
|  | G.07 | Aphelinidae | *Aphelinus* sp1 | P.03 | 2 |
|  |  |  | *Paraphytis haywardi* (De Santis) | P.31 | 1 |
|  |  | Encyrtidae | *Metaphycus* sp1 | P.26 | 2 |
|  |  |  | *Psyllaephagus baccharidis* | P.33 | 987 |
|  |  |  | *Zaplatycerus* sp1 | P.50 | 12 |
|  |  | Eupelmidae | *Brasema* sp1 | P.05 | 1 |
|  |  | Mymaridae | *Caraphractus* sp1 | P.08 | 3 |
|  |  |  | *Mymaridae* sp2 | P.29 | 1 |
|  |  | Platygastridae | *Platygastridae* sp1 | P.32 | 7 |
|  |  | Pteromalidae | *Lyrcus* sp1 | P.25 | 65 |
|  | G.08 | Eulophidae | *Tetrastichinae* sp5 | P.46 | 3 |
|  |  | Eulophidae (Entedoninae) | *Horismenus* sp4 | P.24 | 2 |
|  |  | Eurytomidae | *Rileya* sp1 | P.38 | 2 |
|  |  | Pteromalidae | *Pteromalidae* sp1 | P.36 | 1 |
|  |  | Trichogrammatidae | *Trichogrammatidae* sp1\* | P.49 | 55 |
|  | G.09 | Eulophidae (Entedoninae) | *Horismenus* sp3 | P.23 | 2 |
|  |  | Eurytomidae | *Eurytoma* sp3 | P.20 | 2 |
|  | G.10 | Braconidae (Braconinae) | *Bracon* sp2 | P.04 | 21 |
|  |  | Encyrtidae | *Metaphycus* sp2 | P.27 | 1 |
|  |  | Eulophidae | *Tetrastichinae* sp1\* | P.42 | 49 |
|  | G.11 | Eulophidae | *Tetrastichinae* sp2 | P.43 | 1 |
|  |  | Eupelmidae | *Brasema* sp3 | P.07 | 1 |
|  |  | Eurytomidae | *Eurytoma* sp1 | P.18 | 2 |
|  |  | Torymidae (Megastigminae) | *Torymoides* sp1 | P.47 | 2 |
|  |  |  |  |  |  |
| Exclusion | G.01 | Aphelinidae | *Encarsia* sp1 | P.10 | 2 |
|  |  | Encyrtidae | *Encyrtidae* sp1 | P.11 | 1 |
|  |  | Mymaridae | *Mymaridae* sp1 | P.28 | 1 |
|  | G.02 | Braconidae (Braconinae) | *Myosomatoides* sp1 | P.30 | 1 |
|  |  | Eulophidae (Entedoninae) | *Horismenus* sp1\* | P.21 | 4 |
|  |  | Ichneumonidae | *Clydonium* sp1 | P.09 | 1 |
|  |  |  | *Scambus* sp1 | P.41 | 5 |
|  | G.03 | Eulophidae | *Tetrastichinae* sp3 | P.44 | 27 |
|  |  | Eupelmidae | *Brasema* sp1 | P.05 | 2 |
|  |  |  | *Eupelmidae* sp3 | P.16 | 3 |
|  |  | Eurytomidae | *Eurytoma* sp2 | P.19 | 7 |
|  |  |  | *Rileya* sp3 | P.40 | 1 |
|  |  | Torymidae (Megastigminae) | *Torymoides* sp2 | P.48 | 6 |
|  | G.06 | Eupelmidae | *Brasema* sp2 | P.06 | 1 |
|  |  |  | *Eupelmidae* sp2 | P.15 | 2 |
|  | G.07 | Aphelinidae | *Aphelinus* sp1 | P.03 | 1 |
|  |  | Encyrtidae | *Psyllaephagus baccharidis* | P.33 | 265 |
|  |  | Eulophidae | *Tetrastichinae* sp4 | P.45 | 7 |
|  |  | Eurytomidae | *Rileya* sp2 | P.39 | 1 |
|  |  | Mymaridae | *Caraphractus* sp1 | P.08 | 1 |
|  |  |  | *Mymaridae* sp2 | P.29 | 1 |
|  |  | Pteromalidae | *Lyrcus* sp1 | P.25 | 13 |
|  | G.08 | Eulophidae | *Tetrastichinae* sp5 | P.46 | 4 |
|  |  | Eulophidae (Entedoninae) | *Horismenus* sp4 | P.24 | 2 |
|  |  | Eurytomidae | *Rileya* sp1 | P.38 | 5 |
|  | G.09 | Eulophidae (Entedoninae) | *Horismenus* sp3 | P.23 | 2 |
|  |  | Eupelmidae | *Eupelmidae* sp4 | P.17 | 1 |
|  | G.10 | Aphelinidae | *Aphelinus* sp1 | P.03 | 3 |
|  |  | Braconidae (Braconinae) | *Bracon* sp2 | P.04 | 52 |
|  |  | Encyrtidae | *Psyllaephagus* sp1 | P.34 | 4 |
|  |  | Eulophidae | *Entedoninae* sp1 | P.12 | 1 |
|  |  |  | *Tetrastichinae* sp1\* | P.42 | 105 |
|  | G.11 | Encyrtidae | *Metaphycus* sp1 | P.26 | 1 |
|  |  | Eupelmidae | *Eupelmidae* sp1 | P.14 | 1 |
|  |  |  |  | **Total** | **1841** |

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| Table S3. Regression coefficients from models of response variables on control and treatment groups. The values highlighted in bold are statistically significant (p < 0.05). | | | | | |
| **Response** | **Coefficient** | **Estimate** | **s.e.** | **z** | **p** |
| Abundance of Bracon sp2 (P04) | Intercept | 0.560 | 0.218 | 2.564 |  |
|  | Treatment | 0.827 | 0.259 | 3.197 | **0.001** |
| Abundance of Tetrastichinae sp3 (P44) | Intercept | 1.440 | 0.162 | 8.879 |  |
|  | Treatment | 0.064 | 0.252 | 0.253 | 0.800 |
| Abundance of Torymoides sp2 (P48) | Intercept | 0.201 | 0.302 | 0.666 | 0.506 |
|  | Treatment | -0.201 | 0.508 | -0.395 | 0.693 |