SUPPLEMENTARY MATERIAL. Do forest fires make biotic communities homogeneous or heterogeneous? Patterns of taxonomic, functional, and phylogenetic ant beta diversity at local and regional landscape scales

**Table S1.** Characterization of study areas: vegetation type, site, coordinates, fire location, fire size, soil type, mean annual temperature and annual precipitation.

**Table S2.** Characterization of study plots: vegetation type, site, fire treatment, coordinates, altitude, exposure and slope.

**Table S3.** Description of the ant functional traits examined in this study.

**Figure S1.** Ant phylogeny.

**Table S1.** Characterization of study areas: vegetation type, site, coordinates, fire location, fire size, soil type, mean annual temperature and annual precipitation.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Vegetation type** | **Site** | **Coordinates Long., Lat.** | **Fire location** | **Burned area (ha)** | **Soil type** | **Mean annual temperature (ºC)** | **Annual precipitation (mm)** |
|  | Colera  | 3° 8' , 42° 24' | Colera-Portbou | 229 | Siliceous | 14.5 | 649 |
| Seeder shrubland | Vacarisses | 1° 54' , 41° 34' | Collbató-Olesa | 3165 | Calcareous | 14.8 | 634 |
|  | Llaberia | 0° 50' , 41° 3' | Tivissa | 2359 | Calcareous | 14.9 | 587 |
|  | Garraf | 1° 50' , 41° 18' | Garraf | 4594 | Calcareous | 15.4 | 655 |
| Resprouter shrubland | La Sènia | 0° 18' , 40° 40' | La Sènia | 297 | Calcareous | 11.7 | 625 |
|  | Montcada | 2° 13' , 41° 30'  | Montcada | 914 | Calcareous | 16.1 | 618 |
|  | El Figaró | 2° 16' , 41° 42' | Bigues i Riells | 2692 | Calcareous | 12.9 | 775 |
| *Pinus halepensis* forest with tree understory | La Bisbal del Penedès | 1° 28' , 41° 14' | La Bisbal del Penedès | 1360 | Calcareous | 15.2 | 593 |
|  | Tivissa | 0° 47' , 41° 2' | Tivissa | 2359 | Calcareous | 15.0 | 566 |
|  | La Pobla de Massaluca | 0° 22' , 41° 11' | La Pobla de Massaluca | 5793 | Calcareous | 14.9 | 464 |
| *Pinus halepensis* forest without tree understory | Sant Joan de Vilatorrada | 1° 42' , 41° 46' | Bages-Berguedà | 24300 | Calcareous | 14.0 | 641 |
|  | Sant Quirze del Vallès | 2° 3' , 41° 31' | Sant Quirze del Vallès | 346 | Calcareous | 15.0 | 645 |
|  | Castelltallat | 1° 40' , 41° 48' | Bages-Berguedà | 24300 | Calcareous | 12.5 | 707 |
| *Pinus nigra* forest | Serrateix | 1° 46' , 41° 56' | Bages-Berguedà | 24300 | Calcareous | 13.1 | 682 |
|  | Oristà | 2° 0' , 41° 58' | Prats de Lluçanès | 232 | Calcareous | 12.6 | 740 |
|  | Olvan | 1° 57' , 42° 3' | Bages-Berguedà | 24300 | Calcareous | 11.9 | 756 |
| *Quercus ilex* forest | El Figaró | 2° 15' , 41° 42' | Bigues i Riells | 2692 | Calcareous | 12.9 | 775 |
|  | Gualba | 2° 29' , 41° 44' | Montseny-Guilleries | 9049 | Siliceous | 12.6 | 839 |
|  | La Jonquera | 2° 51' , 42° 24' | La Jonquera | 81 | Siliceous | 13.9 | 705 |
| *Quercus suber* forest | Llagostera | 2° 55' , 41° 47' | Llagostera | 124 | Siliceous | 15.6 | 716 |
|  | Breda  | 2° 31' , 41° 46' | Montseny-Guilleries | 9049 | Siliceous | 14.8 | 783 |

**Table S2.** Characterization of study plots: vegetation type, site, fire treatment, coordinates, altitude, exposure and slope.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Vegetation type | Site | Fire treatment | Plot | UTM\_X | UTM\_Y | Altitude (m) | Exposure (º) | Slope (º) |
| *Pinus halepensi*s forest with tree understory | El Figaró | Burned | 1 | 438598 | 4618999 | NA | 190 | 31 |
| *Pinus halepensi*s forest with tree understory | El Figaró | Burned | 2 | 439886 | 4618581 | 416 | 160 | 27 |
| *Pinus halepensi*s forest with tree understory | El Figaró | Burned | 3 | 439787 | 4618539 | 390 | 220 | 28 |
| *Pinus halepensi*s forest with tree understory | El Figaró | Burned | 4 | NA | NA | NA | 165 | 27 |
| *Pinus halepensi*s forest with tree understory | El Figaró | Burned | 5 | 439739 | 4618546 | 370 | 170 | 31 |
| *Pinus halepensi*s forest with tree understory | El Figaró | Unburned | 1 | NA | NA | NA | 220 | 25 |
| *Pinus halepensi*s forest with tree understory | El Figaró | Unburned | 2 | NA | NA | NA | 145 | 22 |
| *Pinus halepensi*s forest with tree understory | El Figaró | Unburned | 3 | 440395 | 4618308 | 436 | 200 | 30 |
| *Pinus halepensi*s forest with tree understory | El Figaró | Unburned | 4 | NA | NA | NA | 150 | 25 |
| *Pinus halepensi*s forest with tree understory | El Figaró | Unburned | 5 | NA | NA | NA | 180 | 23 |
| *Pinus halepensi*s forest with tree understory | La Papiola | Burned | 1 | 372071 | 4565678 | 290 | 0 | 0 |
| *Pinus halepensi*s forest with tree understory | La Papiola | Burned | 2 | 370608 | 4565108 | 276 | 355 | 19 |
| *Pinus halepensi*s forest with tree understory | La Papiola | Burned | 3 | 371981 | 4565543 | 257 | 40 | 22 |
| *Pinus halepensi*s forest with tree understory | La Papiola | Burned | 4 | 370676 | 4565090 | 268 | 125 | 18 |
| *Pinus halepensi*s forest with tree understory | La Papiola | Burned | 5 | 371535 | 4565596 | 316 | 125 | 15 |
| *Pinus halepensi*s forest with tree understory | La Papiola | Unburned | 1 | 375531 | 4567050 | 155 | 350 | 8 |
| *Pinus halepensi*s forest with tree understory | La Papiola | Unburned | 2 | 376154 | 4566703 | 135 | 10 | 24 |
| *Pinus halepensi*s forest with tree understory | La Papiola | Unburned | 3 | 374343 | 4566199 | 230 | 45 | 21 |
| *Pinus halepensi*s forest with tree understory | La Papiola | Unburned | 4 | 374039 | 4566632 | 194 | 115 | 15 |
| *Pinus halepensi*s forest with tree understory | La Papiola | Unburned | 5 | 373672 | 4566190 | 236 | 135 | 22 |
| *Pinus halepensi*s forest with tree understory | Tivissa | Burned | 1 | 315190 | 4546186 | 584 | 220 | 18 |
| *Pinus halepensi*s forest with tree understory | Tivissa | Burned | 2 | 315096 | 4546122 | 569 | 150 | 20 |
| *Pinus halepensi*s forest with tree understory | Tivissa | Burned | 3 | 315167 | 4546340 | 595 | 300 | 22 |
| *Pinus halepensi*s forest with tree understory | Tivissa | Burned | 4 | 315239 | 4546732 | 605 | 10 | 15 |
| *Pinus halepensi*s forest with tree understory | Tivissa | Burned | 5 | 314860 | 4547043 | 602 | 130 | 24 |
| *Pinus halepensi*s forest with tree understory | Tivissa | Unburned | 1 | 311390 | 4545959 | 359 | 210 | 20 |
| *Pinus halepensi*s forest with tree understory | Tivissa | Unburned | 2 | 311313 | 4545949 | 350 | 205 | 21 |
| *Pinus halepensi*s forest with tree understory | Tivissa | Unburned | 3 | 314707 | 4545686 | 534 | 270 | 18 |
| *Pinus halepensi*s forest with tree understory | Tivissa | Unburned | 4 | 314378 | 4545882 | 533 | 10 | 13 |
| *Pinus halepensi*s forest with tree understory | Tivissa | Unburned | 5 | 314469 | 4546160 | 495 | 60 | 34 |
| *Pinus halepensis* forest without tree understory | La Pobla de Massaluca | Burned | 1 | 279747 | 4564036 | 321 | 275 | 20 |
| *Pinus halepensis* forest without tree understory | La Pobla de Massaluca | Burned | 2 | 279647 | 4563822 | 316 | 30 | 20 |
| *Pinus halepensis* forest without tree understory | La Pobla de Massaluca | Burned | 3 | 279746 | 4563819 | 301 | 65 | 24 |
| *Pinus halepensis* forest without tree understory | La Pobla de Massaluca | Burned | 4 | 279902 | 4563776 | 280 | 190 | 25 |
| *Pinus halepensis* forest without tree understory | La Pobla de Massaluca | Burned | 5 | 280039 | 4563551 | 261 | 80 | 24 |
| *Pinus halepensis* forest without tree understory | La Pobla de Massaluca | Unburned | 1 | 279108 | 4562392 | 303 | 270 | 22 |
| *Pinus halepensis* forest without tree understory | La Pobla de Massaluca | Unburned | 2 | 279073 | 4562102 | 296 | 340 | 18 |
| *Pinus halepensis* forest without tree understory | La Pobla de Massaluca | Unburned | 3 | 278985 | 4562089 | 296 | 100 | 20 |
| *Pinus halepensis* forest without tree understory | La Pobla de Massaluca | Unburned | 4 | 279025 | 4562438 | 303 | 220 | 21 |
| *Pinus halepensis* forest without tree understory | La Pobla de Massaluca | Unburned | 5 | 278996 | 4562176 | 294 | 90 | 21 |
| *Pinus halepensis* forest without tree understory | Sant Joan de Vilatorrada | Burned | 1 | 393441 | 4625042 | 493 | 0 | 0 |
| *Pinus halepensis* forest without tree understory | Sant Joan de Vilatorrada | Burned | 2 | 393225 | 4624698 | 466 | 60 | 30 |
| *Pinus halepensis* forest without tree understory | Sant Joan de Vilatorrada | Burned | 3 | 392819 | 4625465 | 445 | 180 | 22 |
| *Pinus halepensis* forest without tree understory | Sant Joan de Vilatorrada | Burned | 4 | 393579 | 4625683 | 455 | 270 | 22 |
| *Pinus halepensis* forest without tree understory | Sant Joan de Vilatorrada | Burned | 5 | 393528 | 4625721 | 455 | 165 | 18 |
| *Pinus halepensis* forest without tree understory | Sant Joan de Vilatorrada | Unburned | 1 | 394450 | 4624592 | 361 | 0 | 0 |
| *Pinus halepensis* forest without tree understory | Sant Joan de Vilatorrada | Unburned | 2 | 392846 | 4624599 | 448 | 80 | 30 |
| *Pinus halepensis* forest without tree understory | Sant Joan de Vilatorrada | Unburned | 3 | 393163 | 4624521 | 437 | 165 | 25 |
| *Pinus halepensis* forest without tree understory | Sant Joan de Vilatorrada | Unburned | 4 | 393073 | 4624512 | 435 | 250 | 15 |
| *Pinus halepensis* forest without tree understory | Sant Joan de Vilatorrada | Unburned | 5 | 392517 | 4624556 | 457 | 140 | 22 |
| *Pinus halepensis* forest without tree understory | Sant Quirze del Vallès | Burned | 1 | 421941 | 4597088 | 303 | 210 | 23 |
| *Pinus halepensis* forest without tree understory | Sant Quirze del Vallès | Burned | 2 | 422287 | 4597416 | 260 | 290 | 12 |
| *Pinus halepensis* forest without tree understory | Sant Quirze del Vallès | Burned | 3 | 421658 | 4597105 | 288 | 155 | 22 |
| *Pinus halepensis* forest without tree understory | Sant Quirze del Vallès | Burned | 4 | 421065 | 4597367 | 298 | 345 | 11 |
| *Pinus halepensis* forest without tree understory | Sant Quirze del Vallès | Burned | 5 | 421100 | 4597369 | 300 | 75 | 20 |
| *Pinus halepensis* forest without tree understory | Sant Quirze del Vallès | Unburned | 1 | 420923 | 4596761 | 262 | 210 | 23 |
| *Pinus halepensis* forest without tree understory | Sant Quirze del Vallès | Unburned | 2 | 420758 | 4596756 | 253 | 300 | 16 |
| *Pinus halepensis* forest without tree understory | Sant Quirze del Vallès | Unburned | 3 | 420878 | 4596754 | 268 | 140 | 23 |
| *Pinus halepensis* forest without tree understory | Sant Quirze del Vallès | Unburned | 4 | 420825 | 4596773 | 296 | 320 | 15 |
| *Pinus halepensis* forest without tree understory | Sant Quirze del Vallès | Unburned | 5 | 420954 | 4596801 | 270 | 50 | 20 |
| *Pinus nigra* forest | Castelltallat | Burned | 1 | 390253 | 4629899 | 837 | 140 | 18 |
| *Pinus nigra* forest | Castelltallat | Burned | 2 | 391826 | 4630796 | 725 | 40 | 21 |
| *Pinus nigra* forest | Castelltallat | Burned | 3 | 391286 | 4630446 | 723 | 335 | 32 |
| *Pinus nigra* forest | Castelltallat | Burned | 4 | 391510 | 4630756 | 722 | 210 | 18 |
| *Pinus nigra* forest | Castelltallat | Burned | 5 | 390178 | 4629851 | 842 | 130 | 16 |
| *Pinus nigra* forest | Castelltallat | Unburned | 1 | 387805 | 4628541 | 913 | 150 | 30 |
| *Pinus nigra* forest | Castelltallat | Unburned | 2 | 387929 | 4628708 | 931 | 60 | 20 |
| *Pinus nigra* forest | Castelltallat | Unburned | 3 | 387853 | 4628782 | 932 | 320 | 32 |
| *Pinus nigra* forest | Castelltallat | Unburned | 4 | 388046 | 4628790 | 917 | 210 | 17 |
| *Pinus nigra* forest | Castelltallat | Unburned | 5 | 387853 | 4628568 | 900 | 150 | 29 |
| *Pinus nigra* forest | Oristà | Burned | 1 | 419337 | 4648409 | 630 | 240 | 30 |
| *Pinus nigra* forest | Oristà | Burned | 2 | 418966 | 4648397 | 650 | 130 | 26 |
| *Pinus nigra* forest | Oristà | Burned | 3 | 418730 | 4648800 | 665 | 170 | 31 |
| *Pinus nigra* forest | Oristà | Burned | 4 | 418495 | 4648840 | 646 | 320 | 4 |
| *Pinus nigra* forest | Oristà | Burned | 5 | 419124 | 4648899 | 672 | 110 | 29 |
| *Pinus nigra* forest | Oristà | Unburned | 1 | 417682 | 4647660 | 668 | 240 | 30 |
| *Pinus nigra* forest | Oristà | Unburned | 2 | 418251 | 4647919 | 670 | 105 | 27 |
| *Pinus nigra* forest | Oristà | Unburned | 3 | 418177 | 4648381 | 670 | 160 | 27 |
| *Pinus nigra* forest | Oristà | Unburned | 4 | 418056 | 4648462 | 686 | 355 | 8 |
| *Pinus nigra* forest | Oristà | Unburned | 5 | 417839 | 4648559 | 697 | 85 | 31 |
| *Pinus nigra* forest | Serrateix | Burned | 1 | 399271 | 4646285 | 749 | 325 | NA |
| *Pinus nigra* forest | Serrateix | Burned | 2 | 399171 | 4645752 | 749 | 230 | 16 |
| *Pinus nigra* forest | Serrateix | Burned | 3 | 399308 | 4646281 | 757 | 115 | NA |
| *Pinus nigra* forest | Serrateix | Burned | 4 | 399056 | 4646083 | 742 | 115 | 25 |
| *Pinus nigra* forest | Serrateix | Burned | 5 | 398935 | 4645988 | 726 | 170 | 25 |
| *Pinus nigra* forest | Serrateix | Unburned | 1 | 397058 | 4643106 | 666 | 310 | 19 |
| *Pinus nigra* forest | Serrateix | Unburned | 2 | 397041 | 4643035 | 703 | 230 | 26 |
| *Pinus nigra* forest | Serrateix | Unburned | 3 | 396784 | 4642564 | 748 | 30 | 20 |
| *Pinus nigra* forest | Serrateix | Unburned | 4 | 396936 | 4643222 | 716 | 130 | 14 |
| *Pinus nigra* forest | Serrateix | Unburned | 5 | 396610 | 4643410 | 710 | 170 | 26 |
| *Quercus ilex* forest | El Figaró | Burned | 1 | 438598 | 4618999 | NA | 105 | 20 |
| *Quercus ilex* forest | El Figaró | Burned | 2 | 437969 | 4618668 | NA | 180 | 0 |
| *Quercus ilex* forest | El Figaró | Burned | 3 | 437867 | 4618866 | NA | 210 | 20 |
| *Quercus ilex* forest | El Figaró | Burned | 4 | 438034 | 4618578 | NA | 140 | 25 |
| *Quercus ilex* forest | El Figaró | Burned | 5 | 439277 | 4618836 | NA | 40 | 33 |
| *Quercus ilex* forest | El Figaró | Unburned | 1 | 439079 | 4617857 | NA | 105 | 30 |
| *Quercus ilex* forest | El Figaró | Unburned | 2 | 439261 | 4617934 | NA | 180 | 150 |
| *Quercus ilex* forest | El Figaró | Unburned | 3 | 438981 | 4617801 | NA | 110 | 24 |
| *Quercus ilex* forest | El Figaró | Unburned | 4 | 439096 | 4618027 | NA | 150 | 22 |
| *Quercus ilex* forest | El Figaró | Unburned | 5 | 438923 | 4618085 | NA | 50 | 21 |
| *Quercus ilex* forest | Gualba | Burned | 1 | 457543 | 4621325 | 449 | 145 | 24 |
| *Quercus ilex* forest | Gualba | Burned | 2 | 457209 | 4621629 | 571 | 180 | 33 |
| *Quercus ilex* forest | Gualba | Burned | 3 | 457457 | 4621411 | 497 | 55 | 31 |
| *Quercus ilex* forest | Gualba | Burned | 4 | 457225 | 4624180 | 1111 | 140 | 37 |
| *Quercus ilex* forest | Gualba | Burned | 5 | NA | NA | NA | 40 | 32 |
| *Quercus ilex* forest | Gualba | Unburned | 1 | 457454 | 4621167 | 440 | 150 | 31 |
| *Quercus ilex* forest | Gualba | Unburned | 2 | 457153 | 4621578 | 541 | 180 | 34 |
| *Quercus ilex* forest | Gualba | Unburned | 3 | 457120 | 4621312 | 481 | 90 | 32 |
| *Quercus ilex* forest | Gualba | Unburned | 4 | 457138 | 4624038 | 1125 | 140 | 27 |
| *Quercus ilex* forest | Gualba | Unburned | 5 | 457136 | 4621347 | 445 | 55 | 38 |
| *Quercus ilex* forest | Olvan | Burned | 1 | 412979 | 4656556 | 728 | 0 | 5 |
| *Quercus ilex* forest | Olvan | Burned | 2 | 412936 | 4656542 | 715 | 245 | 6 |
| *Quercus ilex* forest | Olvan | Burned | 3 | 412885 | 4656616 | 720 | 255 | 7 |
| *Quercus ilex* forest | Olvan | Burned | 4 | 412902 | 4656767 | 730 | 250 | 5 |
| *Quercus ilex* forest | Olvan | Burned | 5 | 412841 | 4656771 | 732 | 250 | 5 |
| *Quercus ilex* forest | Olvan | Unburned | 1 | 413635 | 4656855 | 774 | 0 | 5 |
| *Quercus ilex* forest | Olvan | Unburned | 2 | 413729 | 4657002 | 780 | 0 | 9 |
| *Quercus ilex* forest | Olvan | Unburned | 3 | 413693 | 4656973 | 789 | 0 | 8 |
| *Quercus ilex* forest | Olvan | Unburned | 4 | 413868 | 4657243 | 786 | 0 | 4 |
| *Quercus ilex* forest | Olvan | Unburned | 5 | 413614 | 4656476 | 768 | 0 | 0 |
| *Quercus suber* forest | Breda | Burned | 1 | 460864 | 4624230 | 445 | 170 | 17 |
| *Quercus suber* forest | Breda | Burned | 2 | 458414 | 4621464 | 344 | 245 | 27 |
| *Quercus suber* forest | Breda | Burned | 3 | 457912 | 4622151 | 352 | 200 | 12 |
| *Quercus suber* forest | Breda | Burned | 4 | 458280 | 4621577 | 346 | 240 | 27 |
| *Quercus suber* forest | Breda | Burned | 5 | 460907 | 4624238 | 445 | 240 | 20 |
| *Quercus suber* forest | Breda | Unburned | 1 | 460557 | 4624683 | 448 | 190 | 30 |
| *Quercus suber* forest | Breda | Unburned | 2 | 458689 | 4620976 | 258 | 220 | 19 |
| *Quercus suber* forest | Breda | Unburned | 3 | 458726 | 4620947 | 115 | 180 | 17 |
| *Quercus suber* forest | Breda | Unburned | 4 | 458624 | 4621079 | 292 | 250 | 21 |
| *Quercus suber* forest | Breda | Unburned | 5 | 460686 | 4624297 | 432 | 225 | 24 |
| *Quercus suber* forest | La Jonquera | Burned | 1 | 488861 | 4695711 | 199 | 70 | 12 |
| *Quercus suber* forest | La Jonquera | Burned | 2 | 488972 | 4695783 | 185 | 170 | 10 |
| *Quercus suber* forest | La Jonquera | Burned | 3 | 489216 | 4695856 | 174 | 135 | 19 |
| *Quercus suber* forest | La Jonquera | Burned | 4 | 489355 | 4696021 | 159 | 40 | 15 |
| *Quercus suber* forest | La Jonquera | Burned | 5 | 489247 | 4695787 | 162 | 15 | 4 |
| *Quercus suber* forest | La Jonquera | Unburned | 1 | 488503 | 4695556 | 165 | 65 | 22 |
| *Quercus suber* forest | La Jonquera | Unburned | 2 | 487979 | 4695963 | 258 | 185 | 13 |
| *Quercus suber* forest | La Jonquera | Unburned | 3 | 488072 | 4695766 | 225 | 140 | 12 |
| *Quercus suber* forest | La Jonquera | Unburned | 4 | 488743 | 4696712 | 226 | 50 | 10 |
| *Quercus suber* forest | La Jonquera | Unburned | 5 | 488047 | 4696019 | 251 | 60 | 3 |
| *Quercus suber* forest | Llagostera | Burned | 1 | 493591 | 4626321 | 237 | 145 | 8 |
| *Quercus suber* forest | Llagostera | Burned | 2 | 493615 | 4626377 | 232 | 90 | 16 |
| *Quercus suber* forest | Llagostera | Burned | 3 | 493705 | 4626943 | 220 | 300 | 15 |
| *Quercus suber* forest | Llagostera | Burned | 4 | 493865 | 4626855 | 209 | 180 | 19 |
| *Quercus suber* forest | Llagostera | Burned | 5 | 493772 | 4627002 | 215 | 15 | 19 |
| *Quercus suber* forest | Llagostera | Unburned | 1 | 493608 | 4626115 | 224 | 95 | 8 |
| *Quercus suber* forest | Llagostera | Unburned | 2 | 493666 | 4626060 | 243 | 115 | 11 |
| *Quercus suber* forest | Llagostera | Unburned | 3 | 493640 | 4626067 | 248 | 320 | 13 |
| *Quercus suber* forest | Llagostera | Unburned | 4 | 493787 | 4626238 | 238 | 150 | 9 |
| *Quercus suber* forest | Llagostera | Unburned | 5 | 493395 | 4626442 | 253 | 10 | 20 |
| Resprouter shrubland | Garraf | Burned | 1 | 403494 | 4572789 | 209 | 0 | 0 |
| Resprouter shrubland | Garraf | Burned | 2 | 403212 | 4572689 | 219 | 60 | 22 |
| Resprouter shrubland | Garraf | Burned | 3 | 402852 | 4572820 | 227 | 160 | 23 |
| Resprouter shrubland | Garraf | Burned | 4 | 403553 | 4572676 | 219 | 20 | 19 |
| Resprouter shrubland | Garraf | Burned | 5 | 403344 | 4572870 | 226 | 220 | 12 |
| Resprouter shrubland | Garraf | Unburned | 1 | 402748 | 4574640 | 397 | 0 | 0 |
| Resprouter shrubland | Garraf | Unburned | 2 | 402906 | 4574608 | 402 | 70 | 17 |
| Resprouter shrubland | Garraf | Unburned | 3 | 402771 | 4574610 | 392 | 190 | 15 |
| Resprouter shrubland | Garraf | Unburned | 4 | 402672 | 4574437 | 372 | 40 | 18 |
| Resprouter shrubland | Garraf | Unburned | 5 | 402719 | 4574292 | 377 | 210 | 15 |
| Resprouter shrubland | La Sènia | Burned | 1 | 273136 | 4506137 | 447 | 50 | 23 |
| Resprouter shrubland | La Sènia | Burned | 2 | 273236 | 4506155 | 447 | 215 | 23 |
| Resprouter shrubland | La Sènia | Burned | 3 | 273659 | 4506964 | 444 | 0 | 0 |
| Resprouter shrubland | La Sènia | Burned | 4 | 273924 | 4507597 | 460 | 0 | 0 |
| Resprouter shrubland | La Sènia | Burned | 5 | 273739 | 4506814 | 442 | 0 | 0 |
| Resprouter shrubland | La Sènia | Unburned | 1 | 272384 | 4505519 | 473 | 70 | 15 |
| Resprouter shrubland | La Sènia | Unburned | 2 | 273665 | 4507924 | 488 | 210 | 18 |
| Resprouter shrubland | La Sènia | Unburned | 3 | 272089 | 4505506 | 507 | 155 | 11 |
| Resprouter shrubland | La Sènia | Unburned | 4 | 273567 | 4507930 | 470 | 215 | 9 |
| Resprouter shrubland | La Sènia | Unburned | 5 | 272345 | 4505382 | 462 | 180 | 8 |
| Resprouter shrubland | Montcada | Burned | 1 | 435864 | 4595190 | 189 | 330 | 33 |
| Resprouter shrubland | Montcada | Burned | 2 | 435782 | 4595144 | 176 | 300 | 20 |
| Resprouter shrubland | Montcada | Burned | 3 | 435579 | 4595218 | 182 | 100 | 20 |
| Resprouter shrubland | Montcada | Burned | 4 | 438469 | 4594672 | 373 | 145 | 24 |
| Resprouter shrubland | Montcada | Burned | 5 | 438528 | 4594727 | 364 | 150 | 23 |
| Resprouter shrubland | Montcada | Unburned | 1 | 434396 | 4595367 | 130 | 300 | 28 |
| Resprouter shrubland | Montcada | Unburned | 2 | 434445 | 4595413 | 131 | 280 | 22 |
| Resprouter shrubland | Montcada | Unburned | 3 | 434369 | 4595248 | 126 | 70 | 31 |
| Resprouter shrubland | Montcada | Unburned | 4 | 438239 | 4594928 | 380 | 140 | 15 |
| Resprouter shrubland | Montcada | Unburned | 5 | 438397 | 4594825 | 382 | 195 | 28 |
| Seeder shrubland | Colera | Burned | 1 | 512225 | 4695239 | 74 | 55 | 29 |
| Seeder shrubland | Colera | Burned | 2 | 512186 | 4695316 | 79 | 35 | 20 |
| Seeder shrubland | Colera | Burned | 3 | 512190 | 4695392 | 81 | 150 | 24 |
| Seeder shrubland | Colera | Burned | 4 | 512388 | 4695270 | 77 | 235 | 25 |
| Seeder shrubland | Colera | Burned | 5 | 512738 | 4695725 | 108 | 45 | 24 |
| Seeder shrubland | Colera | Unburned | 1 | 511530 | 4693958 | 116 | 60 | 18 |
| Seeder shrubland | Colera | Unburned | 2 | 511644 | 4693868 | 105 | 25 | 20 |
| Seeder shrubland | Colera | Unburned | 3 | 511523 | 4694022 | 132 | 130 | 19 |
| Seeder shrubland | Colera | Unburned | 4 | 511471 | 4693967 | 131 | 230 | 19 |
| Seeder shrubland | Colera | Unburned | 5 | 511585 | 4693882 | 116 | 45 | 23 |
| Seeder shrubland | Llaberia | Burned | 1 | 321250 | 4543928 | 277 | 50 | 23 |
| Seeder shrubland | Llaberia | Burned | 2 | 321354 | 4543852 | 292 | 0 | 0 |
| Seeder shrubland | Llaberia | Burned | 3 | 319061 | 4548491 | 685 | 258 | 28 |
| Seeder shrubland | Llaberia | Burned | 4 | 318610 | 4547623 | 582 | 70 | 18 |
| Seeder shrubland | Llaberia | Burned | 5 | 318598 | 4547139 | 555 | 170 | 28 |
| Seeder shrubland | Llaberia | Unburned | 1 | 321207 | 4543585 | 266 | 25 | 19 |
| Seeder shrubland | Llaberia | Unburned | 2 | 321221 | 4543765 | 320 | 140 | 10 |
| Seeder shrubland | Llaberia | Unburned | 3 | 319023 | 4548641 | 685 | 280 | 32 |
| Seeder shrubland | Llaberia | Unburned | 4 | 318273 | 4548223 | 625 | 50 | 25 |
| Seeder shrubland | Llaberia | Unburned | 5 | 318221 | 4548351 | 685 | 130 | 23 |
| Seeder shrubland | Vacarisses | Burned | 1 | 408516 | 4602853 | 471 | 160 | 21 |
| Seeder shrubland | Vacarisses | Burned | 2 | 408689 | 4602810 | 470 | 240 | 22 |
| Seeder shrubland | Vacarisses | Burned | 3 | 408356 | 4602954 | 480 | 255 | 31 |
| Seeder shrubland | Vacarisses | Burned | 4 | 408521 | 4602797 | 465 | 160 | 27 |
| Seeder shrubland | Vacarisses | Burned | 5 | 408291 | 4602771 | 477 | 120 | 22 |
| Seeder shrubland | Vacarisses | Unburned | 1 | 408856 | 4602605 | 476 | 165 | 25 |
| Seeder shrubland | Vacarisses | Unburned | 2 | 408928 | 4602522 | 424 | 260 | 30 |
| Seeder shrubland | Vacarisses | Unburned | 3 | 409174 | 4602370 | 416 | 240 | 23 |
| Seeder shrubland | Vacarisses | Unburned | 4 | 408905 | 4602552 | 444 | 150 | 29 |
| Seeder shrubland | Vacarisses | Unburned | 5 | 409118 | 4602498 | 437 | 110 | 27 |

**Table S3.** Description of the ant functional traits examined in this study.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Trait** | **Data type** | **Description** | **Range** | **Functional significance** |
| Worker size | Continuous | Worker body size measured from the tip of the mandibles to tip of the gaster (mm) | 1.6–10 | Strongly correlated with many physiological, ecological, and life-history traits, including resource use (Kaspari and Weiser, 1999; Bihn et al., 2010) |
| Worker polymorphism | Continuous | The range of worker size divided by mean worker size | 0.1–1.1 | Relates to the breath of functional roles performed by colony (Mertl and Traniello, 2009) |
| Diurnality | Binary | (0) Not strictly diurnal(1) Strictly diurnal | 0, 1 | Indicates when individuals are actively foraging (Hölldobler and Wilson, 1990) |
| Behavioral dominance | Binary | (0) Subordinate(1) Dominant | 0, 1 | Refers to the influence of one species on another when acquiring food resources and thus the ability to gain access to food resources (Arnan et al., 2012) |
| Diet: Seed-eating, insect-eating, and liquid-food eating | Fuzzy coded (\*) | 0–1 (for each of the three categories) | 0–1 | Refers to the type and quantity of food resources a species exploits (Hölldobler and Wilson, 1990) |
| Ratio between queen and worker size | Continuous | Mean queen size divided by mean worker size | 1.1–2.8 |  The higher the ratio, the higher the ability to disperse to longer distance (Amor et al., 2011) |
| Colony size | Continuous | Mean number of workers per colony | 50–150,000 | The ecological advantages of large colony size include increased defence, homoeostasis, work efficiency and a greater ability to modify the surrounding environment (Bourke, 1999) |
| Number of queens | Ordinal | (0) Monogyny; (0.5) Both monogyny and polygyny; (1) Polygyny | 0, 0.5, 1 | Influences a wide range of species characteristics, including group size, worker size, growth rate, competitive ability and efficiency (Keller, 1995; Ross and Keller, 1995; Rosset and Chapuisat , 2007) |
| Number of nests | Ordinal | (0) Monodomy; (0.5) Both monodomy and polydomy; (1) Polydomy | 0, 0.5, 1 | Polydomy confers a great competitive advantage relative to monodomy (McGlynn, 1999) |
| Colony foundation type | Ordinal | (0) DCF; (0.5) Both DCF and ICF; (1) ICF | 0, 0.5, 1 | Independent colony foundation (ICF) strategies provide long-distance dispersal advantages relative to dependent colony foundation (DCF) strategies (Amor et al. 2011) |

\*A fuzzy-coding technique was employed, and scores ranged from “0” (no consumption that food type) to “1” (frequent consumption that food type).

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**Figure S1.** Ant phylogeny.

