

Supplementary Information

Supplementary information for Guzman et al.: Using historical data to estimate bumble bee occurrence: Variable trends across species provide little support for community-level declines. Biological Conservation

Table S2: Species specific proportional change in occupancy under the SS_all_all model and MS_range_detected compared to the IUCN trend and status

| North American Species | | | | | | |
|------------------------|------------|---------------------------------|-------------------|-------------|------------|--|
| Species | SS_all_all | MS_range_detected_soroye_specie | MS_range_detected | IUCN_status | IUCN_trend | |
| affinis | -0.8371847 | -0.6969649 | -0.6899705 | CE | Decreasing | *boldface=95% BCI does not include zero |
| appositus | -0.4579175 | 0.08603656 | 0.08737633 | LC | Unknown | *blue species are shared between EU and NA |
| auricomus | -0.4758581 | 0.00722642 | 0.00814525 | LC | Stable | *grey species removed for being European species |
| bifarius | -0.5115957 | -0.0508956 | -0.0505823 | LC | Stable | |
| bimaculatus | -0.1402487 | 0.49958869 | 0.49729112 | LC | Stable | |
| bohemicus | -0.2707375 | -0.7293029 | -0.7257759 | CE | Decreasing | |
| borealis | -0.6822298 | -0.4275949 | -0.4204975 | LC | Stable | |
| centralis | -0.4263217 | 0.1673434 | 0.16416434 | LC | Stable | |
| citrinus | -0.4267499 | 0.04684449 | 0.04841849 | LC | Stable | |
| cryptarum | -0.1471993 | 0.74311598 | 0.71216783 | DD | Unknown | |
| distinguendus | 7.1967213 | | 0.22068512 | DD | Unknown | |
| fervidus | -0.4085839 | -0.0215866 | -0.0188627 | VU | Decreasing | |
| flavifrons | -0.4342018 | 0.07831798 | 0.08337026 | LC | Stable | |
| fraternus | -0.6858852 | -0.4245862 | -0.422973 | EN | Decreasing | |
| frigidus | -0.5858808 | -0.1197736 | -0.122786 | LC | Stable | |
| griseocollis | -0.1814596 | 0.40852725 | 0.40618915 | LC | Stable | |
| huntii | -0.5645285 | -0.0819036 | -0.0811216 | LC | Stable | |
| impatiens | -0.3358423 | 0.20605203 | 0.20744618 | LC | Stable | |
| insularis | -0.5627733 | -0.1340285 | -0.1267717 | LC | Stable | |
| jonellus | -0.2409722 | 0.41054374 | 0.4103317 | DD | Unknown | |
| lucorum | -0.4016234 | -0.772247 | | NA | NA | |
| melanopygus | -0.4488114 | 0.13265459 | 0.13509768 | LC | Stable | |
| mixtus | -0.4196958 | 0.08111006 | 0.08205321 | LC | Stable | |
| morrisoni | -0.7407441 | -0.5137182 | -0.5080666 | VU | Decreasing | |
| nevadensis | -0.5234802 | 0.03215389 | 0.03808046 | LC | Stable | |
| occidentalis | -0.5319369 | -0.2074904 | -0.2062261 | VU | Decreasing | |
| pennsylvanicus | -0.6576535 | -0.4439245 | -0.4429854 | VU | Decreasing | |
| perplexus | -0.3355194 | 0.29738931 | 0.29531242 | LC | Stable | |
| rufocinctus | -0.5119913 | -0.1112096 | -0.106133 | LC | Stable | |
| sylvicola | -0.5552234 | -0.0139117 | -0.0152053 | LC | Stable | |
| ternarius | -0.5879886 | -0.197991 | -0.1982817 | LC | Stable | |
| terrestris | 0.22666667 | 0.05634556 | | NA | NA | |
| terricola | -0.6610061 | -0.390255 | -0.3894941 | VU | Decreasing | |
| vagans | -0.4768471 | -0.0474256 | -0.0498699 | LC | Stable | |
| vandykei | -0.5514445 | -0.0125522 | -0.006885 | LC | Stable | |
| vosnesenskii | -0.422007 | -0.0434148 | -0.0430238 | LC | Stable | |
| European Species | | | | | | |
| Species | SS_all_all | | MS_range_detected | IUCN_status | IUCN_trend | |
| barbutellus | -0.2207424 | | -0.4877634 | LC | Decreasing | |
| bohemicus | 0.17178605 | | 0.01642513 | DD | Decreasing | |
| campestris | 0.22138052 | | -0.0784277 | LC | Stable | |
| cryptarum | 0.46557771 | | 0.48991511 | DD | Unknown | |
| distinguendus | -0.5294737 | | -0.5850255 | VU | Decreasing | |
| hortorum | -0.0379633 | | 0.00122219 | LC | Stable | |
| humilis | -0.2740826 | | -0.3361671 | LC | Decreasing | |
| hypnorum | -0.0040043 | | 0.15719423 | LC | Increasing | |
| jonellus | -0.113471 | | -0.0674563 | LC | Stable | |
| lapidarius | 0.08114605 | | 0.03283007 | LC | Increasing | |
| lucorum | -0.053521 | | 0.00154472 | LC | Stable | |
| magnus | -0.1315975 | | -0.272512 | LC | Unknown | |
| mendax | -0.0446743 | | 0.08319283 | NT | Decreasing | |
| mesomelas | -0.4342055 | | -0.1165279 | LC | Decreasing | |
| monticola | 0.3836918 | | 0.36646891 | LC | Decreasing | |
| mucidus | -0.4030583 | | -0.0884704 | NT | Decreasing | |
| muscorum | -0.4209942 | | -0.3895454 | VU | Decreasing | |
| norvegicus | 0.17825165 | | 0.84653148 | LC | Stable | |

| | | | | | | | |
|--------------|------------|------------|----|------------|--|--|--|
| pascuorum | -0.0986292 | 0.00087958 | LC | Increasing | | | |
| pomorum | -0.8293986 | -0.7836853 | VU | Decreasing | | | |
| pratorum | 0.05170269 | 0.00922023 | LC | Increasing | | | |
| pyrenaeus | -0.4344535 | -0.1735065 | LC | Stable | | | |
| quadricolor | -0.0559806 | 0.03808961 | LC | Decreasing | | | |
| runderarius | -0.1577883 | -0.2920664 | LC | Decreasing | | | |
| runderatus | -0.6691194 | -0.6848099 | LC | Decreasing | | | |
| rupestris | 0.05185441 | -0.1513242 | LC | Unknown | | | |
| sicheli | -0.3308382 | -0.0074773 | LC | Stable | | | |
| soroensis | -0.1580336 | -0.1782579 | LC | Decreasing | | | |
| sporadicus | -0.2273059 | -0.31883 | LC | Stable | | | |
| subterraneus | -0.4993986 | -0.4835246 | LC | Decreasing | | | |
| sylvarum | -0.2391099 | -0.3349362 | LC | Decreasing | | | |
| sylvestris | 0.05741744 | 0.08670464 | LC | Stable | | | |
| terrestris | -0.0283256 | 0.01499479 | LC | Increasing | | | |
| vestalis | -0.0464015 | 0.18583191 | LC | Increasing | | | |
| veteranus | -0.5954808 | -0.5932194 | LC | Decreasing | | | |
| wurflenii | -0.5756737 | -0.5684017 | LC | Decreasing | | | |