| **Table A3:** Annual Cover Model Summary. Linear mixed effects model fit with **lmer** in R. Reference level (Intercept) is the AZ/NM Highlands ecoregion. Response modeled on log-scale. | | |
| --- | --- | --- |
| Allotments | Ecoregion:Office | N |
| 18850 | 198 | 565500 |

| Random Effects | | | |
| --- | --- | --- | --- |
| Group | var1 | Std.Dev. | cor |
| allotment | (Intercept) | 0.4318 | NA |
| allotment | trend | 0.0102 | -0.1225 |
| Ecoregion:Office | (Intercept) | 0.5625 | NA |
| Ecoregion:Office | trend | 0.0106 | 0.1073 |
| Residual |  | 0.4362 | NA |

| Coefficients | | |
| --- | --- | --- |
|  | Estimate | Std. Error |
| (Intercept) | 1.082 | 0.1818 |
| trend | 0.007 | 0.0035 |
| E Cold Deserts | -0.053 | 0.2045 |
| Forested Mts | 0.153 | 0.1950 |
| Mediterranean California | 1.935 | 0.2861 |
| N Great Plains | 0.312 | 0.2441 |
| S Great Plains | -0.133 | 0.2640 |
| W Cold Deserts | 0.692 | 0.2039 |
| Warm Deserts | 0.596 | 0.2245 |
| trend:E Cold Deserts | 0.005 | 0.0039 |
| trend:Forested Mts | 0.005 | 0.0038 |
| trend:Mediterranean California | 0.005 | 0.0056 |
| trend:N Great Plains | 0.024 | 0.0047 |
| trend:S Great Plains | 0.009 | 0.0051 |
| trend:W Cold Deserts | 0.021 | 0.0039 |
| trend:Warm Deserts | 0.006 | 0.0043 |

| **Table A4:** Bare Ground Cover Model Summary. Linear mixed effects model fit with **lmer** in R. Reference level (Intercept) is the AZ/NM Highlands ecoregion. Response modeled on log-scale. | | |
| --- | --- | --- |
| Allotments | Ecoregion:Office | N |
| 20874 | 198 | 626220 |

| Random Effects | | | |
| --- | --- | --- | --- |
| Group | var1 | Std.Dev. | cor |
| allotment | (Intercept) | 0.5248 | NA |
| allotment | trend | 0.0078 | -0.2913 |
| Ecoregion:Office | (Intercept) | 0.5042 | NA |
| Ecoregion:Office | trend | 0.0065 | -0.1585 |
| Residual |  | 0.2310 | NA |

| Coefficients | | |
| --- | --- | --- |
|  | Estimate | Std. Error |
| (Intercept) | 2.638 | 0.1641 |
| trend | -0.001 | 0.0022 |
| E Cold Deserts | 0.401 | 0.1846 |
| Forested Mts | -0.731 | 0.1761 |
| Mediterranean California | -0.869 | 0.2606 |
| N Great Plains | 0.013 | 0.2197 |
| S Great Plains | 0.277 | 0.2377 |
| W Cold Deserts | 0.354 | 0.1840 |
| Warm Deserts | 0.615 | 0.2030 |
| trend:E Cold Deserts | -0.002 | 0.0024 |
| trend:Forested Mts | 0.001 | 0.0023 |
| trend:Mediterranean California | 0.006 | 0.0035 |
| trend:N Great Plains | -0.014 | 0.0029 |
| trend:S Great Plains | 0.000 | 0.0031 |
| trend:W Cold Deserts | -0.011 | 0.0024 |
| trend:Warm Deserts | -0.003 | 0.0027 |

| **Table A5:** Perennial Cover Model Summary. Linear mixed effects model fit with **lmer** in R. Reference level (Intercept) is the AZ/NM Highlands ecoregion. Response modeled on log-scale. | | |
| --- | --- | --- |
| Allotments | Ecoregion:Office | N |
| 20928 | 198 | 627840 |

| Random Effects | | | |
| --- | --- | --- | --- |
| Group | var1 | Std.Dev. | cor |
| allotment | (Intercept) | 0.2928 | NA |
| allotment | trend | 0.0064 | -0.1157 |
| Ecoregion:Office | (Intercept) | 0.5343 | NA |
| Ecoregion:Office | trend | 0.0081 | 0.3794 |
| Residual |  | 0.1867 | NA |

| Coefficients | | |
| --- | --- | --- |
|  | Estimate | Std. Error |
| (Intercept) | 3.053 | 0.1704 |
| trend | -0.006 | 0.0026 |
| E Cold Deserts | -0.068 | 0.1920 |
| Forested Mts | 0.189 | 0.1829 |
| Mediterranean California | -0.587 | 0.2674 |
| N Great Plains | 0.933 | 0.2300 |
| S Great Plains | 0.758 | 0.2474 |
| W Cold Deserts | -0.272 | 0.1914 |
| Warm Deserts | -1.027 | 0.2108 |
| trend:E Cold Deserts | -0.001 | 0.0029 |
| trend:Forested Mts | -0.005 | 0.0028 |
| trend:Mediterranean California | -0.039 | 0.0041 |
| trend:N Great Plains | 0.002 | 0.0035 |
| trend:S Great Plains | -0.004 | 0.0038 |
| trend:W Cold Deserts | -0.001 | 0.0029 |
| trend:Warm Deserts | -0.017 | 0.0032 |

| **Table A6:** Shrub Cover Model Summary. Linear mixed effects model fit with **lmer** in R. Reference level (Intercept) is the AZ/NM Highlands ecoregion. Response modeled on log-scale. | | |
| --- | --- | --- |
| Allotments | Ecoregion:Office | N |
| 20951 | 198 | 628530 |

| Random Effects | | | |
| --- | --- | --- | --- |
| Group | var1 | Std.Dev. | cor |
| allotment | (Intercept) | 0.3006 | NA |
| allotment | trend | 0.0071 | -0.1314 |
| Ecoregion:Office | (Intercept) | 0.4145 | NA |
| Ecoregion:Office | trend | 0.0053 | 0.0317 |
| Residual |  | 0.1883 | NA |

| Coefficients | | |
| --- | --- | --- |
|  | Estimate | Std. Error |
| (Intercept) | 2.710 | 0.1331 |
| trend | 0.000 | 0.0018 |
| E Cold Deserts | -0.002 | 0.1498 |
| Forested Mts | -0.154 | 0.1428 |
| Mediterranean California | -0.342 | 0.2096 |
| N Great Plains | -0.856 | 0.1791 |
| S Great Plains | -0.721 | 0.1931 |
| W Cold Deserts | 0.004 | 0.1493 |
| Warm Deserts | -0.203 | 0.1645 |
| trend:E Cold Deserts | 0.000 | 0.0020 |
| trend:Forested Mts | 0.001 | 0.0019 |
| trend:Mediterranean California | 0.007 | 0.0029 |
| trend:N Great Plains | 0.004 | 0.0024 |
| trend:S Great Plains | 0.003 | 0.0026 |
| trend:W Cold Deserts | -0.005 | 0.0020 |
| trend:Warm Deserts | 0.001 | 0.0022 |

| **Table A7:** Tree Cover Model Summary. Linear mixed effects model fit with **lmer** in R. Reference level (Intercept) is the AZ/NM Highlands ecoregion. Response modeled on log-scale. | | |
| --- | --- | --- |
| Allotments | Ecoregion:Office | N |
| 12386 | 194 | 371580 |

| Random Effects | | | |
| --- | --- | --- | --- |
| Group | var1 | Std.Dev. | cor |
| allotment | (Intercept) | 0.9646 | NA |
| allotment | trend | 0.0150 | -0.3632 |
| Ecoregion:Office | (Intercept) | 0.6361 | NA |
| Ecoregion:Office | trend | 0.0089 | -0.3319 |
| Residual |  | 0.2733 | NA |

| Coefficients | | |
| --- | --- | --- |
|  | Estimate | Std. Error |
| (Intercept) | 1.809 | 0.2127 |
| trend | -0.001 | 0.0030 |
| E Cold Deserts | -0.557 | 0.2390 |
| Forested Mts | 0.500 | 0.2282 |
| Mediterranean California | 0.394 | 0.3424 |
| N Great Plains | -1.212 | 0.2838 |
| S Great Plains | -0.525 | 0.3134 |
| W Cold Deserts | -0.894 | 0.2394 |
| Warm Deserts | -1.019 | 0.2727 |
| trend:E Cold Deserts | 0.017 | 0.0034 |
| trend:Forested Mts | 0.011 | 0.0033 |
| trend:Mediterranean California | 0.001 | 0.0049 |
| trend:N Great Plains | 0.023 | 0.0040 |
| trend:S Great Plains | 0.005 | 0.0045 |
| trend:W Cold Deserts | 0.015 | 0.0034 |
| trend:Warm Deserts | 0.000 | 0.0039 |

| **Table A8:** Annual Production Model Summary. Linear mixed effects model fit with **lmer** in R. Reference level (Intercept) is the AZ/NM Highlands ecoregion. Response modeled on log-scale. | | |
| --- | --- | --- |
| Allotments | Ecoregion:Office | N |
| 17719 | 195 | 531570 |

| Random Effects | | | |
| --- | --- | --- | --- |
| Group | var1 | Std.Dev. | cor |
| allotment | (Intercept) | 0.6163 | NA |
| allotment | trend | 0.0096 | -0.1921 |
| Ecoregion:Office | (Intercept) | 1.0177 | NA |
| Ecoregion:Office | trend | 0.0151 | -0.2987 |
| Residual |  | 0.7789 | NA |

| Coefficients | | |
| --- | --- | --- |
|  | Estimate | Std. Error |
| (Intercept) | 3.590 | 0.3458 |
| trend | 0.012 | 0.0054 |
| E Cold Deserts | -0.773 | 0.3849 |
| Forested Mts | -0.223 | 0.3687 |
| Mediterranean California | 3.007 | 0.5250 |
| N Great Plains | 0.271 | 0.4541 |
| S Great Plains | -0.037 | 0.5043 |
| W Cold Deserts | 0.550 | 0.3837 |
| Warm Deserts | 0.754 | 0.4191 |
| trend:E Cold Deserts | 0.023 | 0.0059 |
| trend:Forested Mts | 0.021 | 0.0057 |
| trend:Mediterranean California | 0.005 | 0.0082 |
| trend:N Great Plains | 0.036 | 0.0069 |
| trend:S Great Plains | 0.015 | 0.0078 |
| trend:W Cold Deserts | 0.038 | 0.0059 |
| trend:Warm Deserts | 0.012 | 0.0065 |

| **Table A9:** Perennial Production Model Summary. Linear mixed effects model fit with **lmer** in R. Reference level (Intercept) is the AZ/NM Highlands ecoregion. Response modeled on log-scale. | | |
| --- | --- | --- |
| Allotments | Ecoregion:Office | N |
| 20911 | 198 | 627330 |

| Random Effects | | | |
| --- | --- | --- | --- |
| Group | var1 | Std.Dev. | cor |
| allotment | (Intercept) | 0.3798 | NA |
| allotment | trend | 0.0066 | -0.1263 |
| Ecoregion:Office | (Intercept) | 0.6769 | NA |
| Ecoregion:Office | trend | 0.0134 | 0.3714 |
| Residual |  | 0.2584 | NA |

| Coefficients | | |
| --- | --- | --- |
|  | Estimate | Std. Error |
| (Intercept) | 6.255 | 0.2160 |
| trend | -0.004 | 0.0043 |
| E Cold Deserts | -0.122 | 0.2433 |
| Forested Mts | 0.541 | 0.2318 |
| Mediterranean California | -0.005 | 0.3389 |
| N Great Plains | 0.958 | 0.2914 |
| S Great Plains | 0.829 | 0.3135 |
| W Cold Deserts | -0.311 | 0.2426 |
| Warm Deserts | -1.696 | 0.2673 |
| trend:E Cold Deserts | -0.005 | 0.0048 |
| trend:Forested Mts | -0.006 | 0.0046 |
| trend:Mediterranean California | -0.055 | 0.0067 |
| trend:N Great Plains | 0.007 | 0.0058 |
| trend:S Great Plains | -0.003 | 0.0062 |
| trend:W Cold Deserts | -0.002 | 0.0048 |
| trend:Warm Deserts | -0.026 | 0.0053 |