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| **Table 5.** Shrubs and vines associated with goldenseal in Pennsylvania along with indicator species analysis (ISA) results. | | | | | |
| **Scientific name+** | **Common name** | **% of plots and (n)** | **ISA variables** | | |
| **Prov** | **Ca** | **pH** |
| *Lindera benzoin* L. | Spice bush | 83 (44) |  |  |  |
| *Parthenocissus quinquefolia* (L.) Planch. | Virginia creeper | 81 (43) | RV\* |  | AO\* |
| *Berberis thunbergii* DC. \* | Japanese barberry | 58 (31) | P\*\*\* |  |  |
| *Rosa multiflora* Thunb. \* | Multiflora rose | 51 (27) | RV\* |  |  |
| *Toxicodendron radicans* (L.) Kuntze | Poison ivy | 51 (27) | p\*\* |  |  |
| *Viburnum acerifolium* L. | Maple-leaf viburnum | 15 (8) |  |  |  |
| *Smilax hispida* Muhl. ex Torr. | Bristly greenbriar | 13 (7) |  |  |  |
| *Vitis spp.* | Wild grape | 13 (7) | P\* | BO\* |  |
| *Lonicera japonica* Thunb. \* | Japanese honeysuckle | 11 (6) |  |  | AO\* |
| Only associates occurring on 10% or more research plots are given (n = 58 plots) | | | | | |
| Monte Carlo test of significance P-values: \* P ≤ 0.10, \*\* P ≤ 0.05, \*\*\* P ≤ 0.01 | | | | | |
| Prov: P Piedmont, RV Ridge and Valley, AP Appalachian Plateau | | | | | |
| Ca: below optimum (BO) (<1400 ppm), optimum (O), and above optimum (AO) (>2100 ppm). | | | | | |
| pH: below optimum (BO) (<6.0), optimum (O), and above optimum (AO) (>7.0). | | | | | |
| Thresholds for calcium and pH were set based on recommendations by the PSU Agricultural Analytical Services Laboratory for maintaining mixed species woodlots. | | | | | |
| Asterisks (\*) denote non-native, exotic species. | | | | | |
| +All taxonomy follows Weakley, 2023. | | | | | |