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| **Table 6.** Herbaceous species 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** |
| *Arisaema triphyllum* (L.) Schott | Jack-in-the-pulpit | 79 (42) | P\* |  | AO\* |
| *Podophyllum peltatum* L. | Mayapple | 58(31) |  |  |  |
| *Botrypus virginianus* (L.) Michx. | Rattlesnake fern | 55(29) |  |  | AO\* |
| *Dryopteris marginalis* (L.) A. Gray | Marginal wood fern | 55(29) | RV\*\* |  |  |
| *Amphicarpa bracteata* (L.) Fernald | American hogpeanut | 51(27) |  |  |  |
| *Actaea racemosa* L. | Black cohosh | 47(25) | RV\*\*\* |  |  |
| *Microstegium vimineum* (Trin.) A. Camus \* | Japanese stiltgrass | 47(25) | RV\* |  |  |
| *Polystichum acrostichoides* (Michx.) Schott | Christmas fern | 45(24) | RV\* |  |  |
| *Solidago/Symphiotrichum spp.* | Goldenrod/aster | 45(24) |  |  |  |
| *Uvularia perfoliata* L. | Perfoliate bellwort | 45(24) |  |  |  |
| *Galium circaezens* Michx. | Licorice bedstraw | 43(23) |  |  |  |
| *Viola pubescens* Ait. | Downy yellow violet | 43(23) | P\*\*\* |  |  |
| *Geranium maculatum* L. | Wood geranium | 42(22) |  |  |  |
| *Viola hirsutula* Brainerd | Southern woodland violet | 42(22) | P\* |  |  |
| *Alliaria petiolata* (M. Bieb.) Cavara & Grande \* | Garlic mustard | 41(21) |  |  |  |
| *Circaea canadensis* L. | Enchanter's nightshade | 41(21) |  |  |  |
| *Sanicula* *spp*. L. | Black snakeroot | 40(21) | AP\* | AO\* |  |
| *Asarum canadense* L. | Wild ginger | 36(19) |  |  |  |
| *Persicaria longiseta* (Bruijn) Kitagawa \* | Bristled knotweed | 36(19) | RV\*\* |  |  |
| *Sanguinara canadensis* L. | Bloodroot | 36(19) | P\*\*\* |  |  |
| *Maianthemum racemosum* (L.) Link | False Solomon's seal | 34(18) | P\*\*\* |  | AO\*\*\* |
| *Agrimonia* *spp*. Tourn. ex L. | Agrimony | 32(17) |  |  |  |
| *Osmorhiza claytonii* (Michx.) C.B. Clarke | Clayton's sweetroot | 32(17) |  |  | AO\*\* |
| *Nabalus* *spp.* Cass. | Rattlesnake root | 32(17) |  |  | AO\* |
| Only associates occurring on 30% 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. | | | | | |