Web of Gold: using common autumn wildflowers to explore the hidden lessons of food webs

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Autumn wildflowers: a simple floral community

1. Goldenrod
2. Fleabane
3. Common Campion
4. Aster

Nectar is a limiting resource for insects at summer’s end.
Few flowers continue to bloom into early autumn.
Visitation is brisk, with a sense of urgency.
Visitors to Goldenrod: friends, enemies and squatters?

Do all visitors want the same resource from goldenrod flowers? Are all visitors equally abundant? Do they move between flowers or just stay put?
Sample Data Sheet: from a student watching goldenrod

<table>
<thead>
<tr>
<th>Transect</th>
<th>Visitor identity and abundance</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>A (7), B (15), C (3), E (2), G (4)</td>
</tr>
<tr>
<td>II</td>
<td>A (12), B (4), C (2), E (5), F (1), G (1)</td>
</tr>
<tr>
<td>III</td>
<td>A (9), B (7), D (15),</td>
</tr>
<tr>
<td>IV</td>
<td>A (10), B (1), D (9), F (2), G (1)</td>
</tr>
<tr>
<td>Total</td>
<td>A (38), B (27), C (5), D (24), E (7), F (3), G (6)</td>
</tr>
</tbody>
</table>

www.marietta.edu/.../fieldstation.html
Sample Plant-Insect Network: **Partial, from these data**

### Plant Species
1. goldenrod
2. fleabane
3. campion
4. aster

### Insect Visitors
A. honeybees
B, C. bumblebees
D. ants
E. leafcutter bees
F. ladybugs
G. monarchs

**Messages:**
1. Interdependence of nature
2. Changing resources in space & time
3. Your backyard matters (migrating Monarchs)!

**Link color key:**
- red > 30
- 30 > green > 20
- 20 > blue
II. Subtle messages for older students

Queen (♀ ♂ nectar)

Worker (♀ nectar, pollen)

Drone (♂ nectar)

When is a bumblebee not a bumblebee?
Why do different castes behave differently on flowers?
Why are workers more abundant than queens or drones?

Social Insects, Haplodiploidy and Division of Labor
II. Subtle messages for older students

Assassin Bug

Crab Spider

Bugguide.net

Communities.canada.com

How abundant are floral predators compared to pollinators?
What if they were more abundant?
How might they affect pollinator behavior and effectiveness?

Cheaters or traffic cops? The roles of predators on flowers
II. Subtle messages for older students

Do the same insects that visit goldenrod visit neighboring plants? Do these plants get visited more or less when goldenrod is absent? Are they in competition with goldenrod, or dependence?

Subsidizing the neighbors: trickle down effects