PLANT CONSERVATION:
What’s Taught Versus What’s Sought

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What We Know and Don’t Know

• Soft skills (communication, teamwork, problem-solving, etc.) are needed by industry, but lacking in undergraduate students (Brooks et al., 2008; Moore, 2017; Morgan, Marsh, & Fuhrman, 2014)

• Little is known about whether plant conservation industry needs are being addressed through effective teaching (AACU, 2015)
Objectives

1. What’s Taught
   • Compare plant conservation-related college syllabi from schools in different U.S. geographic regions...

2. What’s Sought
   • ... with needs assessment findings from industry professionals

3. Recommend curricular changes to best prepare graduates
Methods, Data Collection, and Analysis: What’s Taught

• Syllabus collection and review (N = 51)
  • Content analysis procedures used to summarize...
  • Course material/Learning objectives
  • Assignments/Assessments informing student grades

Prescribed fire is an invaluable tool to restore many rare plant communities
Methods, Data Collection, and Analysis: What’s Sought

• Online Delphi Study - Plant Conservation Professionals (N = 31)

• Round 1: Opening question...
  • If you were teaching a university-level class to produce a hirable plant conservation professional, please generate a list of the competencies, expertise, skills, abilities, and knowledge that you think an individual should possess by the end of the course.

• Round 2: Consolidate and rate previously shared responses

• Round 3: Rank topic areas and curriculum recommendations
Results: What’s Taught - Syllabus Analysis

• Most common content:
  1. (61%) Ecology & Biodiversity Loss (Tied)
  2. (55%) Natural Communities
  3. (53%) Evaluating Scientific Literature
  4. (51%) Problem-solving and Conservation Policy & Plant Species Biology (Tied)

• Most common assessment types:
  1. (76%) Exams
  2. (53%) Participation
  3. (49%) Writing Assignments (class paper)
  4. (47%) Labs & Discussion (Tied)
  5. (45%) Class Presentation
  6. (35%) Group Work (often preparing the class presentation)
Results: What’s Sought - Delphi Study

Most important → Decreasing priority

<table>
<thead>
<tr>
<th>Topic Area</th>
<th>Average rank (high→low)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plant science</td>
<td>9</td>
</tr>
<tr>
<td>Ecology</td>
<td>8</td>
</tr>
<tr>
<td>Field Experience</td>
<td>7</td>
</tr>
<tr>
<td>Natural Resources</td>
<td>6</td>
</tr>
<tr>
<td>Biology</td>
<td>5</td>
</tr>
<tr>
<td>Work habits</td>
<td>4</td>
</tr>
<tr>
<td>Conservation Policy</td>
<td>3</td>
</tr>
<tr>
<td>Communication</td>
<td>2</td>
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<tr>
<td>Horticulture</td>
<td>1</td>
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<tr>
<td>Technology</td>
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</table>
Results: What’s Sought - Delphi Study

Seven of the top 20 skills/competencies related to these two areas

Included teamwork and problem-solving
Conclusions

• What’s Taught
  • Ecology, Biodiversity, Research Methods, and Conservation Policy
  • Formal exams, Participation points, and Class papers are used to evaluate learning most often

• What’s Sought
  • Science content knowledge still a priority
  • Top 10 skills/competencies being sought included soft skills (ranked 6th and 8th, respectively)
Recommendations

• For the Classroom
  • Service-learning and industry partnerships may help (Cooke et al., 2015; Franek, 2017; Perrin, 2014)
  • Content does not have to be compromised
  • Be explicit about what soft skills will be gained through assignments

• For Further Research
  • Follow-up with faculty on specific teaching procedures being used
  • Further compare course content and assignments by geographic region
  • Longitudinally follow-up with industry professionals