Volunteer Monitoring of Restoration Work

Tallgrass Prairie Forum

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Presentation Outline

- Background
- Review of research into volunteer monitoring of restoration
  - Methods and their ability to assess progress
  - Are they robust when performed by untrained workers?
- Brief overview of recent experiences with volunteers

Background

- Many professionals and volunteers involved in forest and savanna restoration
- Time and money for monitoring the results of restoration work is scarce
  - In many cases, the opportunity to learn from the work is lost and/or progress is unknown

Methods Chosen

- Vegetation
  - Point-centred quarter method
  - Quadrat counts
  - Walkabouts
- Soils
  - Soil auger sampling, visual and feel tests

Table 1: Vegetation Structure

Indicator	Reference 1	Site 1	Reference 2	Site 2	Site 3
Tree density (ha^{-1})	440	4430	460	860	280 (20% dying)
Seedling density (ha^{-1})	3200	3100	1850	960	555
Shrub density (ha^{-1})	2850	2490	3324	1483	748
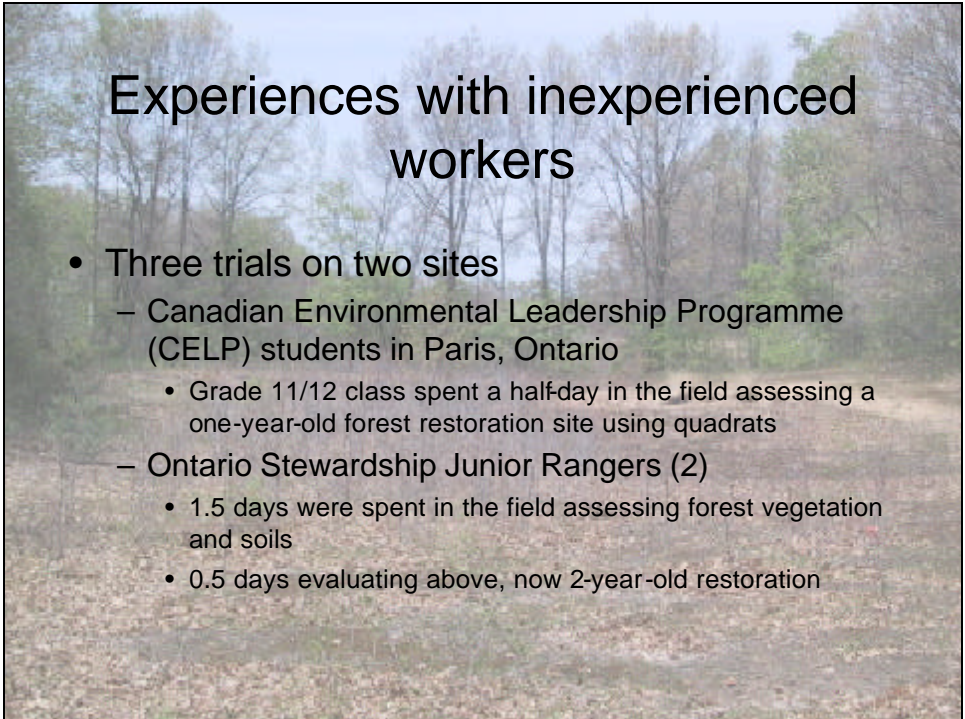
Table 2: Floristic Relationships

	Sorensen Similarity Coefficient	Reference % exotics	Restoration % exotics
Site 1 – woody	0.64	3.4	11
Site 2 – woody	0.35	2.9	11.5
Site 3 – woody	0.33	2.9	5

Conclusions

- Researchers were able to easily collect sufficient data to differentiate between good, medium and poor levels of restoration progress at the three sites
- The time required to do the analysis of results is seen as the biggest barrier to volunteer monitoring

Experiences with inexperienced workers

- Three trials on two sites
  - Canadian Environmental Leadership Programme (CELP) students in Paris, Ontario
    - Grade 11/12 class spent a half-day in the field assessing a one-year-old forest restoration site using quadrats
  - Ontario Stewardship Junior Rangers (2)
    - 1.5 days were spent in the field assessing forest vegetation and soils
    - 0.5 days evaluating above, now 2-year-old restoration

Results: Nith River

Species	Relative frequency (%)		
	Researchers 2003	CELP 2004	Junior Rangers 2005
Red Oak group	32	28	12
White Oak group	13	14	14
Bitternut Hickory	26	9	12
Shagbark Hickory	11	19	12
White Ash	8	0	5
Manitoba Maple	9	30	36

Discussion – Nith River

- CELP students
  - had very little plant ID experience
  - Had a long list of plants to look for
  - Were asked to count stems for many species
- Method was easily followed by students, but plant identification was a problem
- Ontario Jr Rangers
  - Had some tree ID experience
  - Had a much shortened list of plants to look for
  - Had improved equipment to use
  - Were only asked to note presence absence for herbaceous spp.
- Method easy to follow, worked much faster than CELP students, results appear much more valid

Results: Camp Onondaga

Population Densities stems/ha	CO (JR)	Reference 1 (Researchers)	Reference 2 (Researchers)
No. of points	10	15	18
Trees > 0.5m	568 (183)	551 (163)	374 (142)
Saplings (2-10 cm) stem	458 (201)	361 (230)	590 (107)
Shrubs	2600 (86)	2490 (63)	3324 (123)
Coarse woody debris (avg no. per point)	10.6	8.7	20

Discussion – Junior Rangers

- Junior Rangers spent 1.5 days using the Point-quarter method to assess vegetation
- Characterised one community in a small woodlot
- Results appear to be as valid as that of researchers
- Much more intensive training and supervision than CELP students

Conclusions
Use of methods by inexperienced workers

- All groups found the methods relatively easy to use after an hour or less of training
- Plant identification was tagged as the most difficult problem to overcome
- This work did not address the issue of data analysis
- A naturalists' club with its mix of knowledge and talents is proposed as the ideal group to use these methods

Monitoring Experiences with Naturalists

- Forest health using EMAN protocols
- Wild Lupines in Oak/Pine savanna
- Vegetation structure and composition using ELC methods
- Floristic composition in a wet prairie