



The Status of *Schwalbea americana* L. (Orobanchaceae) in Georgia

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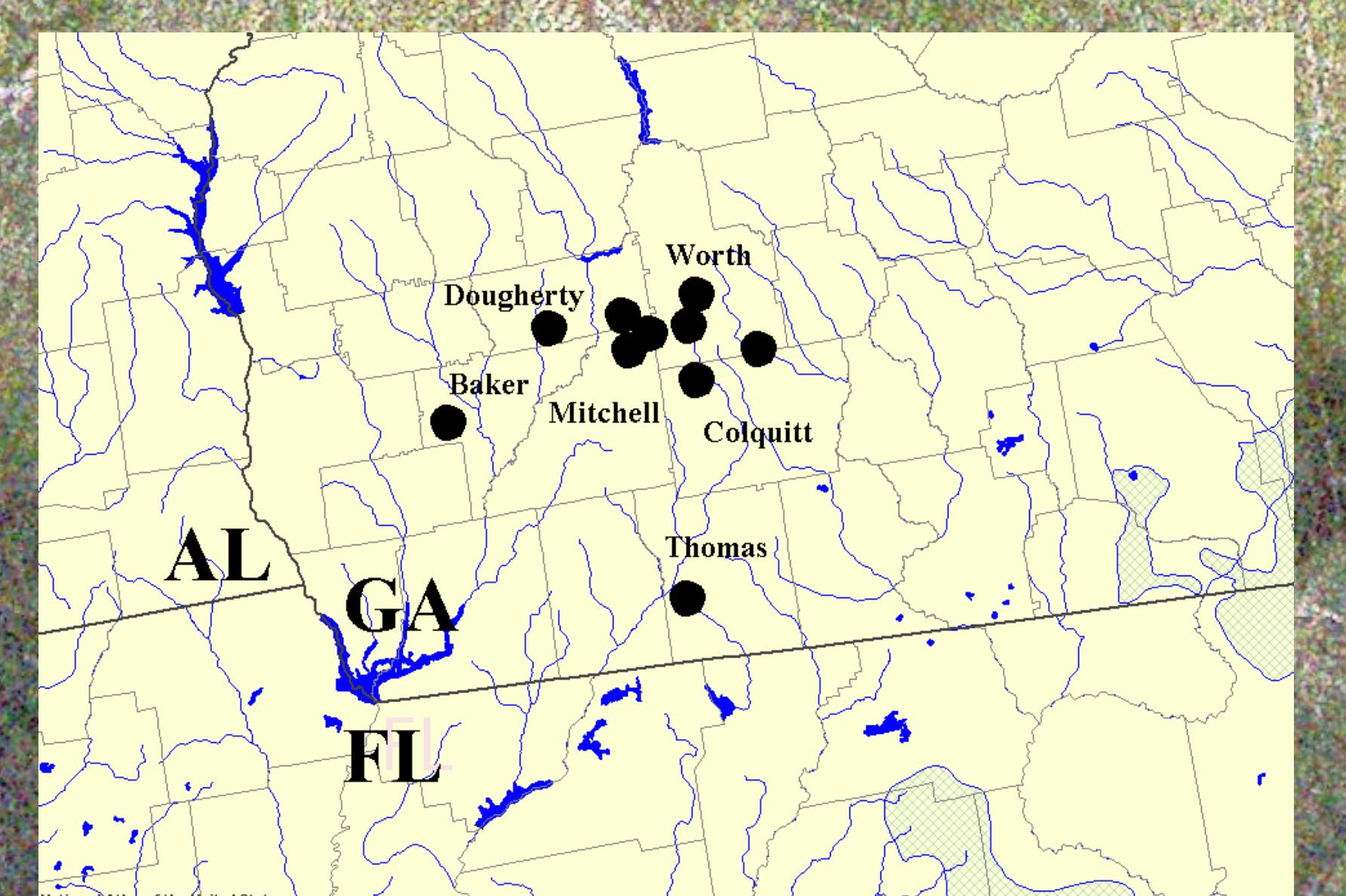
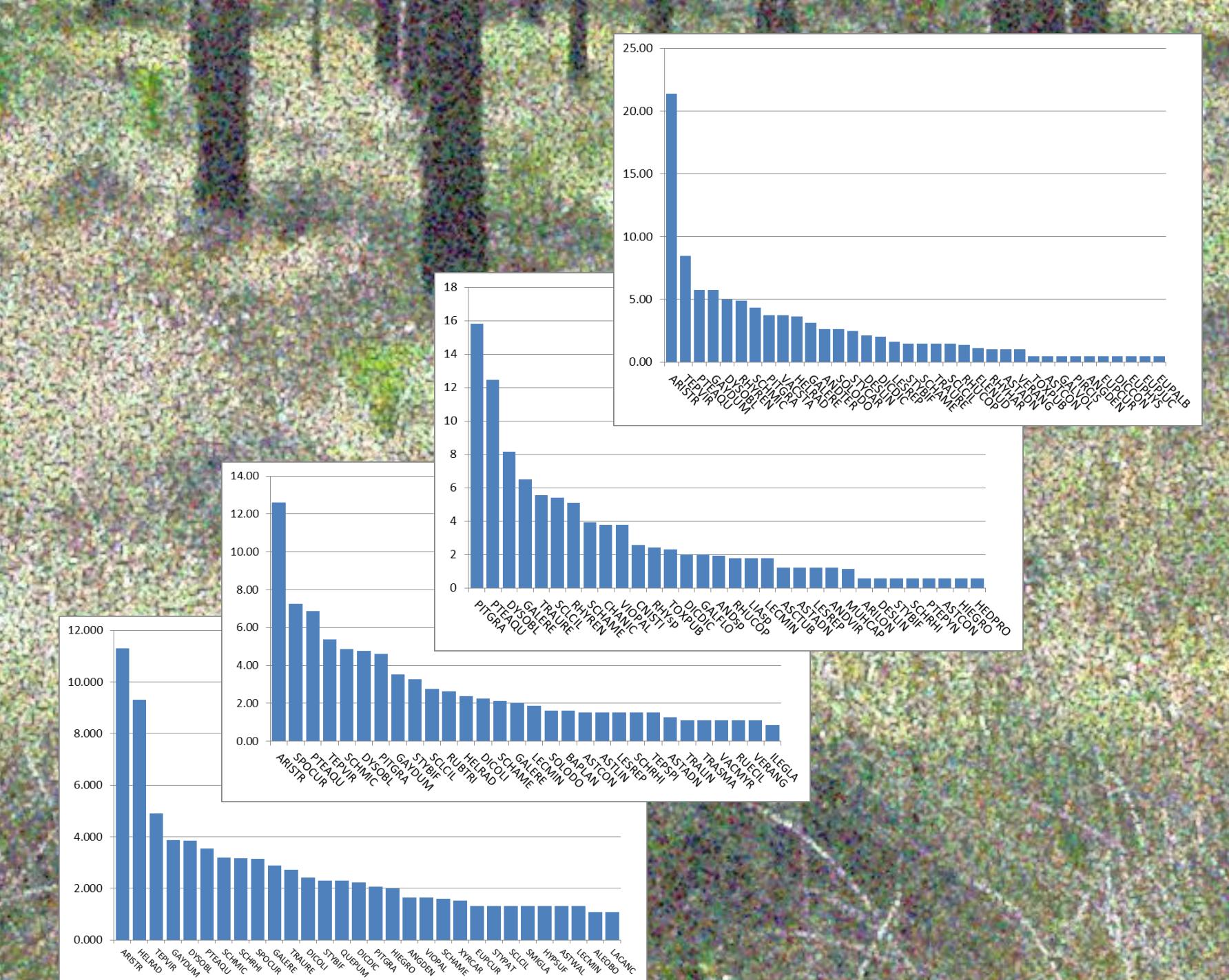


INTRODUCTION

Schwalbea americana L. (American chaffseed) is listed federally and by the state of Georgia as Endangered (USFWS 1992; Chafin 2007; NatureServe 2015). Its rarity resulting from habitat fragmentation and the exclusion of fire has been well documented (Musselman and Mann 1978, Kral 1983, USFWS 1995). Few plants are as closely adapted to fire as *S. americana* (USFWS 1995; Kirkman et al. 1998; Norden and Kirkman 2004a, b), and all extant sites in Georgia appear to be managed with prescribed fire and have a wiregrass component. Our purpose was to document historical populations and to explore additional sites especially in southwestern Georgia where fire has been re-introduced into longleaf pine-wiregrass habitats. By assessing and documenting known sites and populations and searching for new populations, we expect to obtain a better understanding of the conservation status of chaffseed in Georgia.



| The Five Most Important Species in 1 m ² Plots Ranked by Order of Relative Importance | | | | | |
|--|------------|------------|-------------|----------------|--------------------------------|
| | Arcadia 01 | Arcadia 04 | Jeffords 01 | Quail Ridge 01 | Cumulative Relative Importance |
| <i>Aristida stricta</i> | | 5 | 5 | 5 | 15 |
| <i>Dyschoriste oblongifolia</i> | 3 | 1 | | 1 | 5 |
| <i>Galactia erecta</i> | 2 | | | | 2 |
| <i>Gaylussacia dumosa</i> | | 2 | | 2 | 4 |
| <i>Helianthus radula</i> | | | | 4 | 4 |
| <i>Pityopsis graminifolia</i> | 5 | | | | 5 |
| <i>Pteridium aquilinum</i> | 4 | 3 | 3 | | 10 |
| <i>Mimosa quadrivalvis</i> | | | 1 | | 1 |
| <i>Sporobolus curtissii</i> | | | 4 | | 4 |
| <i>Tephrosia virginiana</i> | | 4 | 2 | 3 | 9 |
| <i>Tragia urens</i> | 1 | | | | 1 |



Acknowledgments: Funding for this project was provided by Georgia Department of Natural Resources and the Faculty Development Fund of Valdosta State University.

| EO Site Name | Area (m ²) | EO Number of Plants (Year) | Metapopulation Total Number of Plants | EO Ranking | Metapopulation Ranking |
|---------------------|------------------------|----------------------------|---------------------------------------|------------|------------------------|
| Arcadia 01 | 1886 | 283 (2007) | | B- (2.75) | |
| Arcadia 01a | 20 | 5 (2007) | | B- (2.75) | |
| Arcadia 02 | 1232 | 4 (2007) | | B- (2.75) | |
| Arcadia 02a | incl | 17 (2007) | | B- (2.75) | |
| Arcadia 03 | N/A | 7 (2006) | | B (3.00) | |
| Arcadia 03a | 28 | 26 (2007) | | B (3.00) | |
| Arcadia 04 | 3649 | 86 (2007) | | A- (3.75) | |
| Arcadia 04a | 3 | 4 (2007) | | C (2.25) | |
| Arcadia 05 | 2910 | 126 (2007) | | A- (3.75) | |
| Arcadia 06 | N/A | 15 (2007) | | A- (3.75) | |
| Arcadia 07 | 1603 | 30 (2006) | | A- (3.75) | |
| Arcadia 07a | 1331 | 70 (2006) | | A- (3.75) | |
| Arcadia 08 | 1342 | 125 (2006) | | B (3.00) | |
| Arcadia 09 | 10 | 9 (2007) | | B (3.00) | |
| Doerun 01 | N/A | 2 (2008) | | B+ (3.25) | |
| Doerun 02 | N/A | 1 (2008) | | B+ (3.25) | |
| Doerun 03 | 2150 | 100 (2008) | | A (4.00) | |
| Freeman 01 | 124685 | 581 (2008) | | A (4.00) | |
| Freeman 01a | 138 | 13 (2008) | | A (4.00) | |
| Freeman 01b | 1687 | 242 (2008) | | A (4.00) | |
| Freeman 01c | N/A | 6 (2008) | | A (4.00) | |
| Freeman 01d | N/A | 3 (2008) | | A (4.00) | |
| Jeffords 01 | 3241 | 393 (2007) | | A (4.00) | |
| Jeffords 01a | 696 | 449 (2007) | | A (4.00) | |
| Jeffords 01b | 1873 | 154 (2007) | | A (4.00) | |
| Jeffords 01c | N/A | 6 (2007) | | A (4.00) | |
| Jeffords 02 | 568 | 198 (2007) | | A (4.00) | |
| Jeffords 03 | 488 | 76 (2007) | | A (4.00) | |
| Jeffords 04 | 11 | 8 (2007) | | A- (3.75) | |
| Jeffords 04a | | 26 (2008) | | A- (3.75) | |
| Jeffords 04b | 557 | 13 (2008) | | A- (3.75) | |
| Jeffords 05 | 1911 | 335 (2007) | | A (4.00) | |
| Jeffords 05a | 169 | 9 (2007) | | A (4.00) | |
| Jeffords-Hancock 01 | 9 | 7 (2007) | | B+ (3.50) | |
| Nilo 01 | 51 | 13 (2007) | | D (1.25) | |
| Nilo 01a | 512 | 108 (2007) | | D (1.25) | |
| Pinewood 01 | 44 | 8 (2007) | | C (2.00) | |
| Pinewood 02 | 132 | 9 (2007) | | B- (2.75) | |
| Pinewood 03 | 19 | 1 (2007) | | C- (1.75) | |
| Pinewood 03a | 11 | 3 (2008) | | B- (2.50) | |
| Pinewood 04 | 580 | 9 (2008) | | B- (2.75) | |
| Pinewood 05 | N/A | 1 (2008) | | C- (1.75) | |
| Pinewood 06 | 5 | 3 (2008) | | C (2.00) | |
| Pinewood 07 | 53 | 10 (2008) | | C (1.50) | |
| Okeal Ridge 01 | 5121 | 31 (2007) | | A (4.00) | |
| Okeal Ridge 01a | 283 (2008) | | | A (4.00) | |
| Quail Ridge 01a | incl | 0 (2007) | | A (4.00) | |
| Quail Ridge 01b | | 13 (2008) | | A (4.00) | |
| Weatherby 01 | 6072 | 255 (2007) | | B (3.00) | |
| Weatherby 02 | N/A | 5 (2008) | | D (1.00) | |
| Total | | 4158 | | C (2.00) | |

Methods

To maximize the likelihood of discovery of new populations and observation of known populations, surveys were conducted in suitable habitat on recently burned sites. The optimal survey period was six to eight weeks after fire, up until the end of the growing season.

Numbers of individuals were counted, populations were mapped, assessed and ranked according to quality, habitat condition, viability, and defensibility. Associated species were documented, and plots were established to quantitatively describe associated plant communities.

Results

Comprising more than 4,000 individuals, nine metapopulations in six southwestern Georgia counties were described, mapped, and ranked. Community types corresponding with our observations in Georgia are (USNVC 2016):

- *Pinus palustris / Quercus laevis – Quercus margarettiae / Licania michauxii / Aristida beyrichiana* Woodland [CEGL004492]
- *Pinus palustris / Quercus incana / Aristida stricta – Sorghastrum nutans – Anthaenantia villosa* Woodland [CEGL003578]
- *Pinus palustris – Pinus elliottii var. elliottii / Ctenium aromaticum – Aristida beyrichiana – (Sporobolus floridanus)* Woodland [CEGL004790]

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