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BUTLER HOLLOW GLADES: BASELINE ASSESSMENT AND VEGETATION MONITORING ESTABLISHMENT

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The Nature Conservancy

MONITORING

Several sampling and documentation protocols were implemented to establish baseline vegetation data. These data will provide a comparison point for future resamplings at the site. Figure 1 depicts the locations of vegetation monitoring plots and transects at the site. Detailed vegetational sampling was conducted in the dolomite glades, and general vegetation monitoring transects were installed across the entire hollow at both the north and south ends. A series of photomonitoring points were established and documented. To track tree demographics, four permanent 0.5 acre macroplots were established at selected woodland locations. Each monitoring system is discussed in the following sections.

Glade Monitoring

A series of permanent line transects were established on three dolomite glades in Butler Hollow. Along each transect, a series of 0.25 m^2 square quadrats were sampled at randomized intervals. For each quadrat, all species present above ground and rooted in the quadrat, as well as all vines falling within the quadrat, were recorded and each species was assigned a cover/abundance value according to the following guidelines (all cover values are based on estimates from vertical projections):

Cover-abundance value	Description
1	<1% cover
2	1 - 5% cover, or, for small species with less than 1% cover, numerous individuals present in quadrat, with some individuals in each quadrant of quadrat
3	5 - 25% cover, or, for small species with less than 5% cover, pervasive prresence throughout quadrat, forming the most frequent plant species in all quadrants of the quadrat, and generally present in some numbers in any given square decimeter
4	25 - 50% cover
5	>50% cover

The frequency and cover/abundance data from each transect are used to calculate a Relative Importance Value (RIV_{200}). This provides a relative measure of the prevalance of each species in the sampling - the total of the RIV_{200} values for all species in a transect will be 100. Transect data also provide several other useful parameters:

mean N/quadrat - the mean number of native species in each quadrat along the transect; serves as an indicator of per-unit-area diversity and richness

mean CC/quadrat - the average mean coefficient of conservatism per quadrat for all quadrats in the transect; provides information about the extent that conservative species are participating throughout the vegetation of the transect

mean I/quadrat - the mean Natural Quality Index per quadrat for all the quadrats in the transect; provides a measure of the natural quality of the transect on a per-unit-area basis

N/transect - the total number of native species sampled in the entire transect; provides a measure of the aggregate diversity of the transect vegetation - note that transect diversity may be high even though per quadrat diversity is low, indicating a degraded system with recovery potential

mean CC/transect - the mean coefficient of conservatism for the total flora of the transect, i.e. for all plants that were encountered in sampling the quadrats along the transect; this indicates the conservativism level of the transect flora - again, a conservative transect flora with low per quadrat conservatism values indicates a potentially recoverable system in need of management

RIV 1, etc. - the highest (or second, third, etc.) RIV_{200} for the transect; the species are listed by acronyms according to Appendix 1

Σ RIV 1-5 - the sum of the RIV_{200} values for the species with the five highest RIV_{200} values; this serves as an indicator of the extent to which a few species are dominant in the system

Σ graminoid RIV - the sum of the RIV_{200} values for all grasses and sedges encountered in the transect sampling; serves as a measure of the overall intactness of a fine fuel matrix over the transect area

Σ woody RIV - the sum of the RIV_{200} values for all woody plants sampled along the transect; serves as an index of the degree of woody encroachment, and indicates the effects of management treatments in controlling woody invasion.

These transects are designed to be efficiently resampled in future years. The initial sampling results, presented fully in Appendix 2 and discussed here, provide a profile of the current composition and structure of the glade vegetation. The table below provides a summary of the vegetation data from the three glades

Table 3. Summary of transect data from dolomite glades.

Transect:	N Glade	SW Glade	SE Glade
# quadrats	23	25	25
mean N/quadrat	8.6	10.6	10.7
mean CC/quadrat	5.2	5.2	5.1
mean I/quadrat	15.0	16.3	16.8
N/transect	60	71	53
mean CC/transect	4.9	4.7	5.3
RIV 1	ANDSC 6.9	CROMO 6.9	ANDSC 9.4
RIV 2	CROMO 6.0	ALLMU 6.8	CROMO 7.9
RIV 3	ALLMU 5.7	ANDSC 6.2	ANDPH 6.6
RIV 4	HELMA 5.5	SPOVA 5.8	SPOVA 6.3
RIV 5	HOUNI 4.9	HOUNI 5.4	ALLMU 5.8
Σ RIV 1-5	29.0	31.1	36.0
Σ graminoid RIV	24.8	25.7	29.5
Σ woody RIV	6.7	8.7	6.9

Ap'l — JUNE 1 – VERNAL LIST

– 1/4 METER PLOTS – GIVE BEST DEGREE ACCURACY
– SAMPLING [illegible] SEEDLINGS LOST OTHERWISE

– SET UP 1 TRANSECT/SITE
- 50 RANDOM PLOTS/TRANSECT (OR AS LOW
- Q/I PGR SITE
- ADD SPRING & FALL FLORA

– DO QA BEFORE TRANSECTS – 1 DAY MAX/SITE
– START CREW IN SPRING TO LEARN FLORA
– BY JUNE 10 – BEGIN W/ TRAINED CREW THAT KNOWS SITES

– DO RANDOM SAMPLING OF 100 PLOTS – RANDOMIZED
~~July /~~ FOR ENTIRE REFUGE

Enter 6 letter code – if accidentally deep – will clean up

NEW DATA ADDED TO LIST IN FIELD – ADDED TO DATA –
– ARCHIVE ~~[illegible]~~ AMENDED LISTS

CAN COMPARE LISTS
– COMMON SPP
– UNIQUE SPP TO SITE

DOES INDEX OF SIMILARITY
SORRENSON $\frac{2 \times \text{COMMON SPP}}{\text{LIST A} + \text{LIST B}}$

PLOTS
FLAGS MISTAKES

WILL NEED TO DECIDE PROTOCOL FOR UNKNOWNS
- Jerry ignores
- Doug logs mistakes & keys
- can assign value if know ~~something~~ about it ex- unknown lilies –
L. is G – can ~~[illegible]~~ code as unknown
CC is usually assigned as average of similar

Can also track bare soil
water
% Litter

Codes Empty