Appendix D. Heritage Methodology and Plot Sampling Form

Natural Heritage Methodology

Natural heritage methodology provides a rigorous set of standard procedures for identifying, inventorying, and mapping species and ecosystems of conservation concern. Because biodiversity encompasses the variety of life at all levels, not just species, natural heritage methodology is designed to deal with both species and ecological communities. At the core of the methodology is the concept of the element occurrence, the spatial representation of a species or ecological community at a specific location. An element occurrence generally delineates a species population or ecological community stand, and represents the geo-referenced biological feature that is of conservation or management interest.

In the broadest sense, natural heritage methodology answers three key questions:

1) What species and ecosystems exist in a region (the elements of biodiversity)?
2) How are they doing (their condition and status), and which are priorities for conservation?
3) Where precisely are they found (documenting and mapping element occurrences)?

To answer these questions, natural heritage programs carry out a series of repeated steps. Each time the steps are repeated, the data are refined to give a better picture of biodiversity and of problems and progress in its conservation.

Basic Steps of Heritage Methodology

1. **Develop a list of the elements of biodiversity in a given jurisdiction, focusing on better-known species groups (e.g., vertebrate animals, vascular plants), and on the ecological communities present.**
2. **Assess the relative risk of extirpation or extinction of the elements to determine conservation status and set initial priorities for detailed inventory and protection.**
3. **Gather information from all available sources for priority elements, focusing on known locations, possible locations, and ecological and management requirements.**
4. **Conduct field inventories for these elements and collect data about their location, condition, and conservation needs.**
5. **Process and manage all the data collected, using standard procedures that will allow compilation and comparison of data across jurisdictional boundaries.**
6. **Analyze the data with a view toward refining previous conclusions about element rarity and risk, location, management needs, and other issues.**
7. **Provide access to data and information products to interested parties so that it can be used to guide conservation, management planning, and other natural resource decision-making.**

The following form is an example of the standard plot sampling field form used by NatureServe and the Natural Heritage Programs. The Natural Heritage Methodology described above is applied and the data is recorded in the field on one of these forms. Field forms may be adjusted slightly to capture specific project related data.

NATURESERVE PLOT FORM

Plot Code_____ **Polygon Code**_____ **Airphoto #**_____

Park sublocation (Surveysite) _____

Quad Name_____ Quad Code_____

Survey Date: _____ Surveyors: _____ Sourcecode:

Provisional Community Name

Classified Community Name

_____**GELCODE:** CEGL00_____

Ecological System type

Directions to Plot:

Plot length_____ **width**_____ **shape**_____ **Permanent (y/n)** ____**Plot Photos (y/n)** ___ **Roll#** _____ **Frame#** _____

Plot representativeness

GPS file name_____ Field UTM X__ __ __ __ __ __ m E Field UTM Y__ __ __ __ __ __ __ m N

GPS unit used_____ datum_____ Error +/-_____ m

Corrected UTM X__ __ __ __ __ __ m E Corrected UTM Y__ __ __ __ __ __ __ m UTMZone_____

ENVIRONMENTAL DESCRIPTION

Elevation: m / ft *include units!*

Aspect (*use true, not magnetic, value*):

Slope	**Degr**	**%**
Flat	0	0%
Gentle	1-5	1-9%
Modt.	6-14	10-25%
Som. Steep	15-26	26-49%
Steep	27-45	50-100%
V. Steep	46-69	101-275%
Abrupt	70-95	276-300%
Overhang	>100	>300%

Record more exact measures if taken:

Topographic Position
- Crest/Summit/Ridge
- Upper/Shoulder Slope
- High Plateau
- Middle Slope
- Slope step (terracette)
- Lower Slope
- Toe Slope
- Low level/terrace
- Channel wall
- Channel bed
- Depression

Landform
- Bar
- Basin
- Beach.
- Bluff/bank
- Channel
- Cliff
- Cove
- Delta
- Dome
- Drumlin
- Dune
- Escarpment
- Esker
- Estuary
- Flat
- Floodplain
- Gorge
- Hill
- Kame
- Kettle
- Lake /pond
- Ledge
- Moraine
- Mountain
- Outwash plain
- Oxbow
- Plain
- Plateau
- Ravine
- Ridge
- Saddle
- Swale
- Talus
- Terrace
- Valley
- Other_____

Geology: Bedrock
- Igneous
  - Granitic
  - Dioritic
  - Gabbroic
- Metamorphic
  - Slate/phyllite
  - Schist
  - Gneiss
  - Marble
  - Serpentine
- Sedimentary
  - Shale
  - Limestone /Dolomite
- Other

Geology: Surficial
- Bedrock
- Talus
- Glacial till
- Moraine
- Esker/outwash
- Glacial delta
- Lacustrine/ fluvial
- Marine
- Aeolian
- Other

Cowardin System
- ___Upland
- ___Riverine
- ___Palustrine
- ___Lacustrine
- ___Estuarine

Hydrologic regime
- ___Permanently Flooded
- ___Semipermanetly Flooded
- ___Seasonally Flooded
- ___Saturated (& may be seas. flooded)
- ___Temporarily Flooded
- ___Intermittently Flooded
- ___Tidally Flooded

Salinity
- Coastal salt (>30 ppt)
- Coastal brackish (5-30 ppt)
- Fresh tidal (< 5 ppt)
- Inland salt
- Inland brackish

Soil Taxon/Description:			**Soil Profile notes** Depth examined:_____ Horizons, colors, depth to obstruction, depth to water table, depth to mottling, etc.
Soil Texture ___ sand ___ sandy loam ___ loam ___ silt loam ____ silt ___ clay loam ___ clay ___ peat ___ muck	**Soil Drainage** ___ Rapidly drained ___ Well drained ___ Moderately well drained ___ Somewhat poorly drained ___ Poorly drained ___ Very poorly drained	**Unvegetated Surface:** *(please use cover scale below)* _____ Bedrock _____ Large rocks (cobbles, boulders > 10 cm) _____ Small rocks/gravel (0.2-10 cm) _____ Sand (0.1-2 mm) _____ Litter, duff _____ Wood (> 1 cm) _____ Bare soil _____ Water Other:_____	
Soil pH:	**Soil Stoniness** ____ v. little (< 1%) ____ moderate (2-20%) ____ very stony (20-50%) ____ exceedingly stony (>50%)		
Additional environment notes:			

VEGETATION DESCRIPTION

Leaf phenology (of dominant stratum)	**Leaf Type** (of dominant stratum)	**Physiognomic class**	**Cover Classes: Strata & Unveg. Surface**	**Height Classes for Strata**
<u>Trees and Shrubs</u> % Evergreen:____ % Deciduous:____ ___Evergreen ___Cold-deciduous ___Mixed <u>Herbs</u> ___Annual ___Perennial	___Broad-leaved ___Needle-leaved ___Microphyllous ___Graminoid ___Forb ___Pteridophyte ___Non-vascular	___Forest ___Woodland ___Shrubland ___Dwarf Shrubland ___Herbaceous ___Nonvascular ___Sparsely Vegetated	5% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%	<0.5 m 0.5-1m 1-2 m 2-5 m 5-10 m 10-15 m 15-20 m 20-35 m 35-50 m >50 m

Stratum	**Height***	**Cover***	**Characteristic / diagnostic species** **please use height and cover classes from table above*
T1 Emergent			
T2 Canopy			
T3 Sub-canopy			
S1 Tall Shrub			
S2 Short Shrub			
H Herbaceous			
N Non-vascular			
V Vine/liana			

SPECIES/COVER VALUES

Starting with the uppermost stratum, list each species within the plot and its cover class. For forests and woodlands, on a separate line below each tree species, list the DBH of all trees >10 cm dbh, separating measurements with a comma. **Circle DBH units: cm / in**

Species name or unique code	stratum	cover	Species name or unique code	stratum	cover

***species cover classes** (midpoint): **< 1** 1 / **1-5%** 3 / **6-10%** 8 / **11-25%** 18 / **26-50%** 38 / **51-75%** 63 / **76-100%** 87

Brief word picture of community:
Topographic sketch:
Adjacent vegetation type(s):
Known/inferred land-use history:
Animal use evidence
Natural disturbance evidence:
Invasive species notes:
Other anthropogenic disturbance comments
Other Comments

ADDITIONAL NOTES (*continue as needed on reverse*)