



# FAIRFAX COUNTY PARK AUTHORITY



## M E M O R A N D U M

**TO:** Chairman and Members  
Park Authority Board

**FROM:** Kirk W. Kincannon, Executive Director

**DATE:** October 18, 2018

### *Agenda*

**Committee of the Whole**  
**Wednesday, October 24, 2018 – 6:30 p.m.**  
**Boardroom – Herrity Building**  
**Chairman: William G. Bouie**  
**Vice Chair: Ken Quincy**

1. Natural Area Preserve Program -Virginia Department of Conservation and Recreation Briefing (with presentation) – Information\*

\*Enclosures



If accommodations and/or alternative formats are needed, please call (703) 324-8563. TTY (703) 803-3354

Committee Agenda Item  
October 24, 2018

**INFORMATION** (with presentation)

Virginia Natural Area Preserve Program

The Virginia Department of Conservation and Recreation will provide information on the Virginia Natural Area Preserve Program.

The Virginia Natural Area Preserves System was established in the late 1980s to protect some of the most significant natural areas in the Commonwealth. A site becomes a component of the preserve system once it is dedicated as a natural area preserve by the Director of the Department of Conservation & Recreation. Natural area dedication works in much the same way as a conservation easement by placing legally binding restrictions on future activities on a property. The Natural Area Preserve System includes examples of some of the rarest natural communities and rare species habitats in Virginia. This system now includes 63 dedicated natural areas totaling 56,210 acres.

ENCLOSED DOCUMENTS:

None.

STAFF:

Kirk Kincannon, Executive Director  
Sara Baldwin, Deputy Director/COO  
Aimee Vosper, Deputy Director/CBD  
Barbara Nugent, Director, Resource Management Division  
David Bowden, Director, Planning and Development Division  
Todd Brown, Director, Park Operations Division  
Cindy Walsh, Director, Park Services Division  
Judy Pedersen, Public Information Officer  
John Stokely, Manager, Natural Resource Management Branch

# Virginia Department of Conservation and Recreation Division of Natural Heritage



# Virginia Natural Area Preserves Act (1989)

## The Department shall...

“Preserve the natural diversity of biological resources of the Commonwealth”

### **Maintain a Natural Heritage Program to:**

- (1) Select and nominate areas containing natural heritage resources for registration, acquisition, and dedication as natural areas and natural area preserves.
- (2) Develop and implement a Natural Heritage Plan that shall govern the Natural Heritage Program in the creation of a system of registered and dedicated natural area preserves.
- (3) Publish and disseminate information pertaining to natural areas and natural area preserves.



# Inventory



Zoologists



Botanists

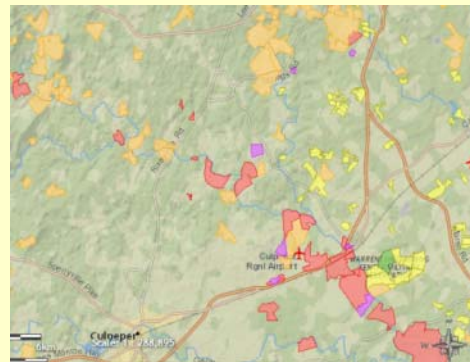
Ecologists



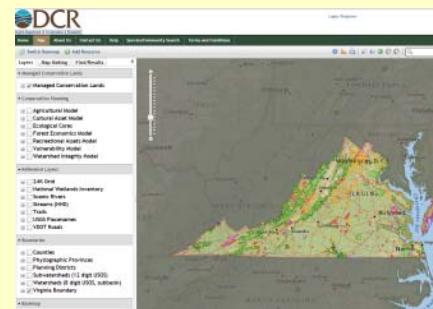
# Information Management



International data standards



VA Conserved Lands

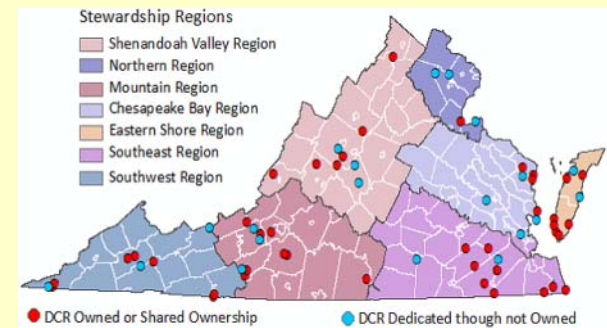


Natural Heritage Data Explorer (NHDE)

# Project Review



# Resource Protection



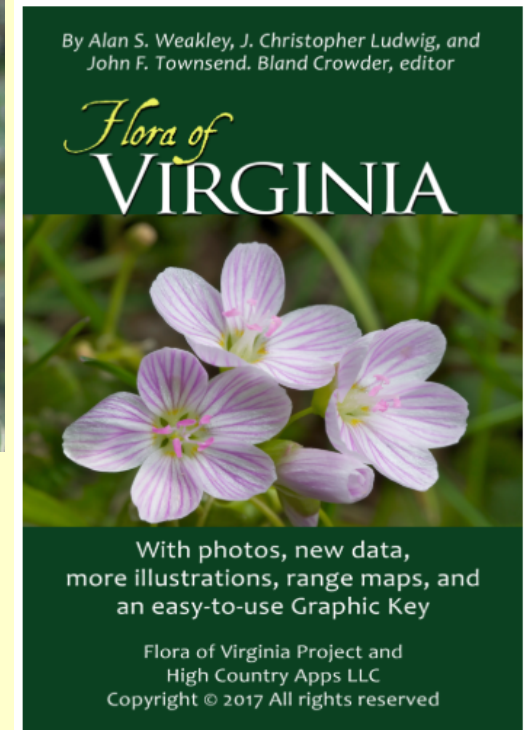
# Stewardship



# Conserving Virginia's biodiversity through inventory, protection, & stewardship

## Biological foundations:

- 30 species new to science
- 300 species new to Virginia
- taxonomic experts in multiple areas







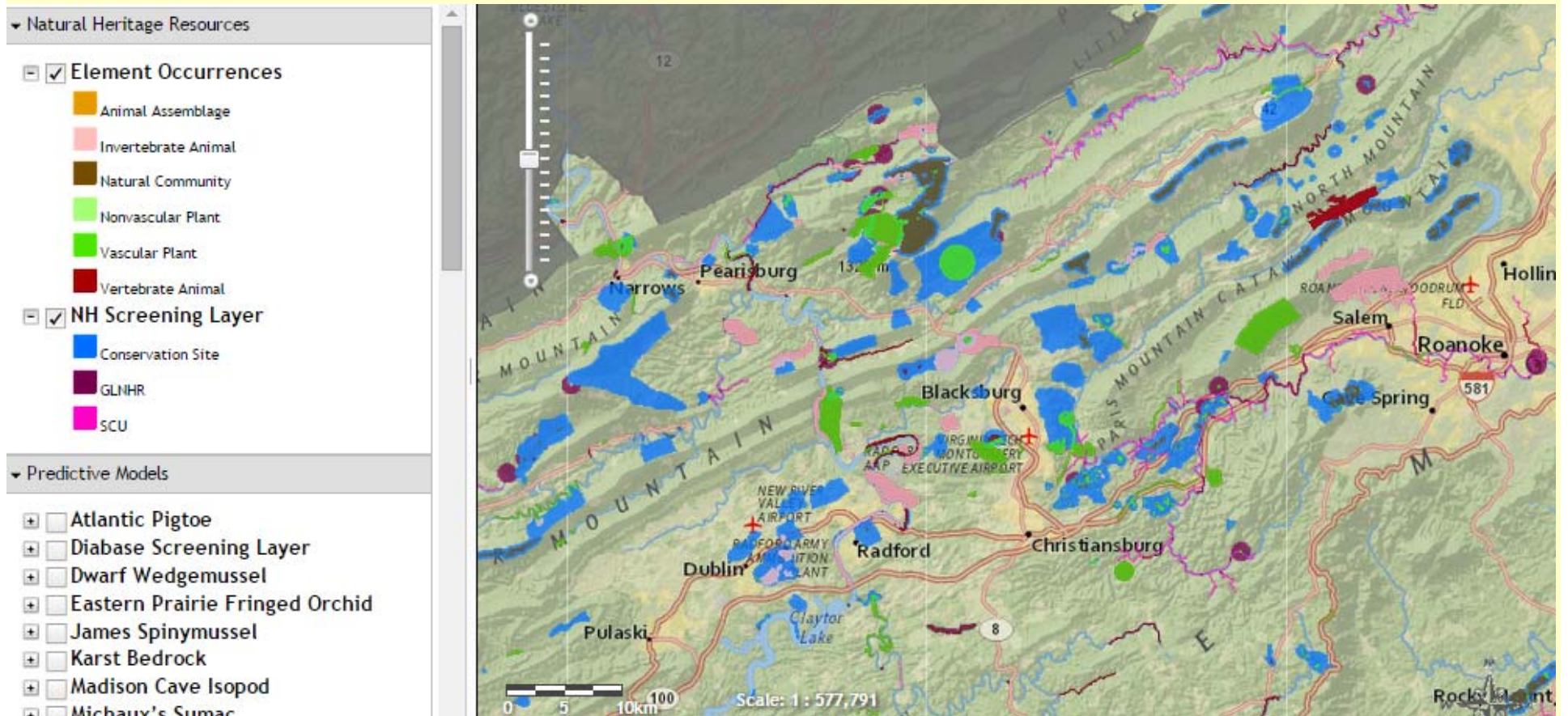
# Natural Heritage Resources

## (documented as of 10/2018)

	Elements	Occurrences
<b>Plant Species</b>	648	4,081
non-vascular (57)		
vascular (591)		
<b>Animal Species</b>	602	3,453
invertebrate (435)		
vertebrate (162)		
assemblage (5)		
<b>Communities</b>	378	2,187
<b>Fungi</b>	12	25
	<b>1,640</b>	<b>9,746</b>



# Mapping Heritage Resources



# Natural Heritage Methodology

Conservation sites: 2,069  
Boundaries delineated  
Composite biodiversity  
ranks assigned

Each location is ranked  
A, B, C, D, E, F, H, X

Mapped locations: 9,235

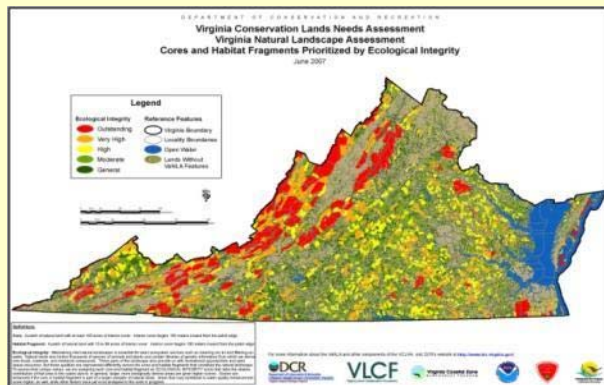
Element ranks:  
Global: 1–5  
State: 1–5

Elements Tracked:  
Natural communities: 528  
Plant species: 709  
Animal species: 796



# Comprehensive models and geographic data

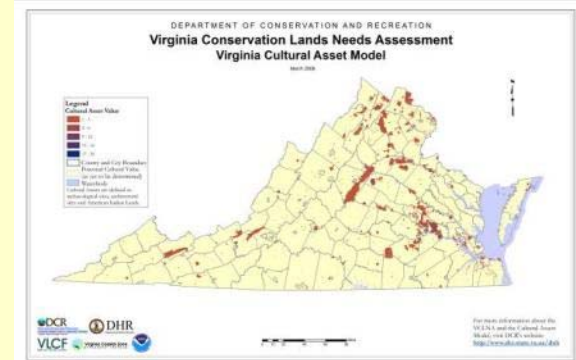
## Natural Landscapes



## Agricultural



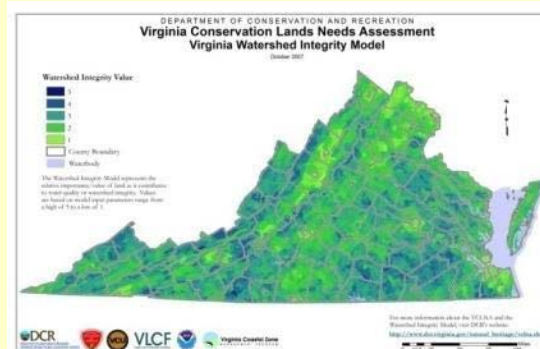
## Cultural Assets



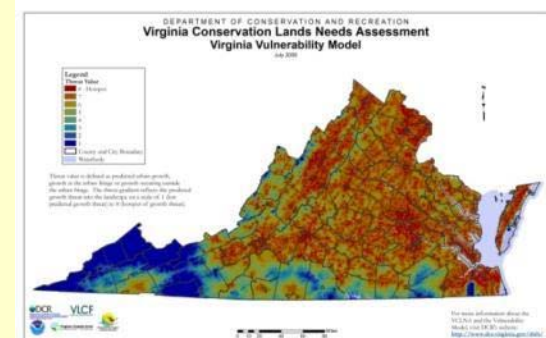
## Forest economics



## Watershed Integrity



## Development Vulnerability

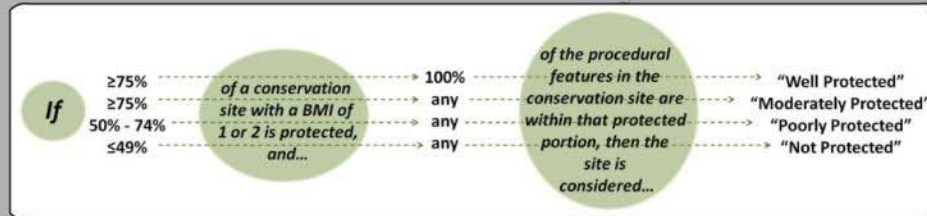




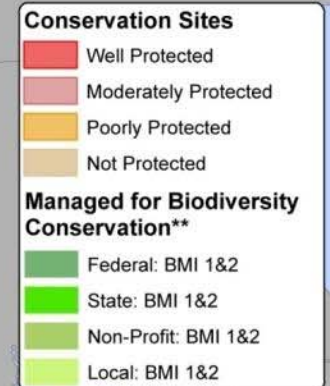
# Conservation Sites Status

## Measuring the Conservation Status of Virginia's Conservation Sites

Maintenance of three key datasets at Virginia Natural Heritage enables an ongoing monitoring of protectedness of Natural Heritage Resources (exemplary natural communities and rare species), as well as strategic decisions about how best to manage lands and target lands for conservation.



- The Conservation Lands Database includes all public and privately managed lands in Virginia at a parcel level (~10,350 tracts), where each is attributed with a Biodiversity Management Intent (BMI) score\*, ranging from 1 to 5.
- The Conservation Sites dataset delineates the best determination of the land and water area occupied by one or more Natural Heritage Resources and required to support their long-term survival (~2000 sites in Virginia).
- Procedural Features represent the exact locations of Natural Heritage Resources. They are the building blocks of Element Occurrences (~8,600) and are managed in Biotics 5.



\* Biodiversity Management Intent (BMI) codes

- |   |   |
|---|---|
| 1: Specifically Managed for the Protection of Plant and Animal Communities.                     | 4: General Open Space Conservation.                                     |
| 2: Managed for the Conservation of Plant and Animal Communities with Limited Impacts Permitted. | 5: No Designation or Management for Conservation of Natural Conditions. |
| 3: Managed for General Natural Resource Conservation.   |   |

\*\* This map does not include all permanently protected lands, but only those managed for biodiversity conservation (BMI=1 or 2).



VA Natural Heritage, March 28, 2014



# Species Distribution Modeling

## Improving Project Review with Species Distribution Models



*Rhus michauxii*  
G2G3/S1 ST, FE



In Virginia, the U.S. Fish and Wildlife Service (USFWS) has used county-level species presence/absence data, to determine a need for Threatened and Endangered (T&E) species consultation (for *Rhus michauxii*, counties in yellow). At the state level, VA Natural Heritage initiates consultation based on screening a project against known locations of T&E, via buffered Element Occurrence data (in purple). These two inconsistent approaches often result in differing requests for survey from state and federal agencies.



N

Nottoway

Lunenburg

Brunswick





Previously, a project anywhere in these four counties would have triggered FWS consultation.

Dinwiddie



Now both agencies are beginning to use the same screening tools to trigger consultation. Inductive

Species Distribution Models (SDM) are developed based on GIS and statistical analysis of the unique relationships between species locations and various habitat characteristics. Map outputs are used in USFWS and VA Natural Heritage online environmental review tools: IPaC (Information Planning and Conservation System) and NHDE (Natural Heritage Data Explorer). These objective methods and clear model outputs (for *R. michauxii*, in pink) enable better-informed survey requests, and expedited consultation for government and for clients. Virginia Natural Heritage is currently building a library of SDMs for all T&E species in Virginia.

-  *Rhus michauxii* EOs
-  2 mile EO buffer
-  *R. michauxii* screening layer
-  *R. michauxii* Counties



# Natural Heritage Data Explorer (NHDE)



Virginia Department of Conservation & Recreation

[Login/Register](#)

[Home](#) [Map](#) [About Us](#) [Contact Us](#) [Help](#) [Species/Community Search](#) [Terms and Conditions](#)

[Switch Basemap](#) [Add Resource](#)

Layers [Map Making](#) [Find/Results](#)

Managed Conservation Lands

**Managed Conservation Lands**

Conservation Planning

- Agricultural Model
- Cultural Asset Model
- Ecological Cores
- Forest Economics Model
- Recreational Assets Model
- Vulnerability Model
- Watershed Integrity Model

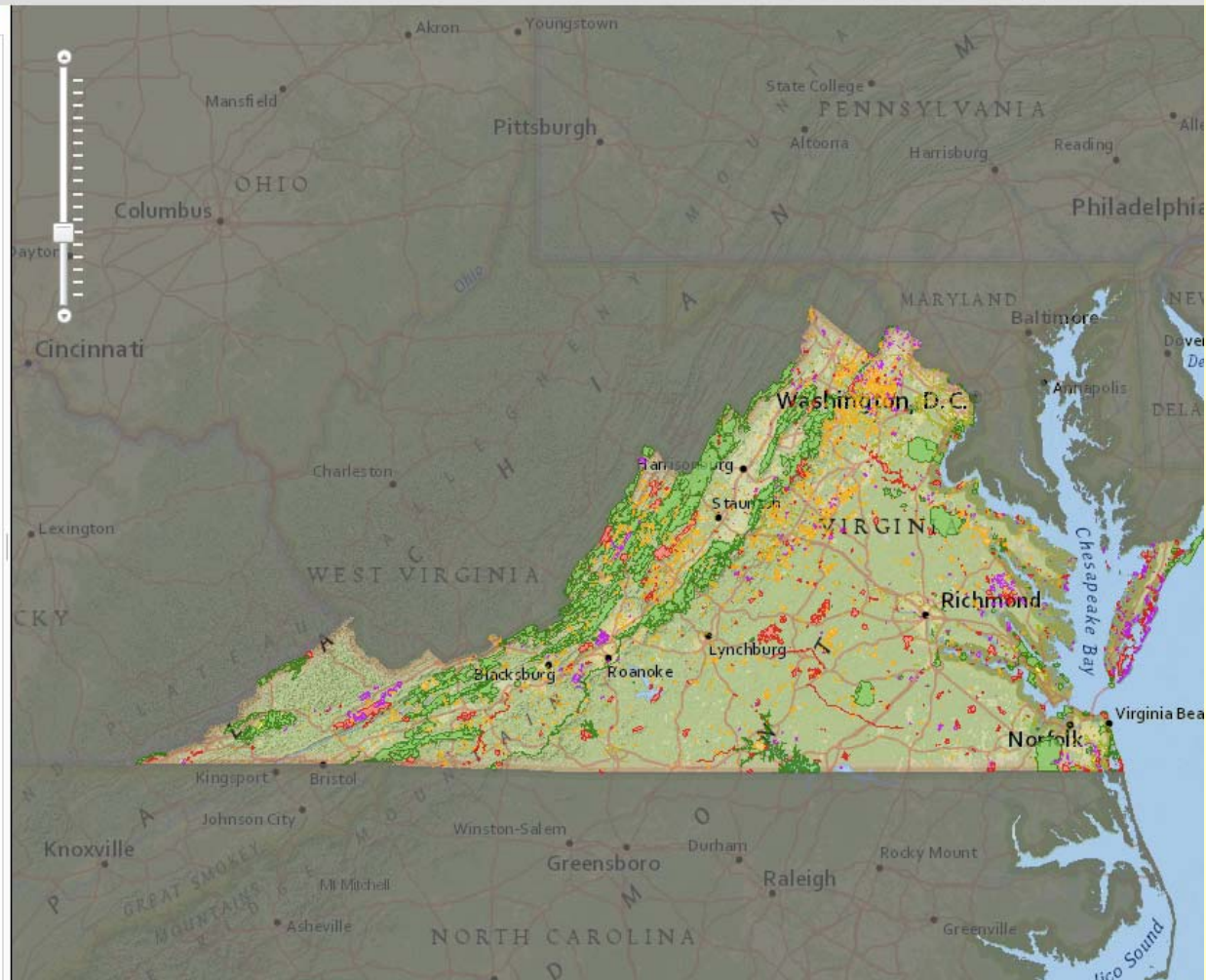
Reference Layers

- 24K Grid
- National Wetlands Inventory
- Scenic Rivers
- Streams (NHD)
- Trails
- USGS Placenames
- VDOT Roads

Boundaries

- Counties
- Physiographic Provinces
- Planning Districts
- Subwatersheds (12 digit USGS)
- Watersheds (8 digit USGS, subbasin)
- Virginia Boundary**

Basemap







## The Department shall...

“Preserve the natural diversity of biological resources of the Commonwealth”

**Natural Diversity = ~ 35,000 species of plants, animals, invertebrates, natural communities**



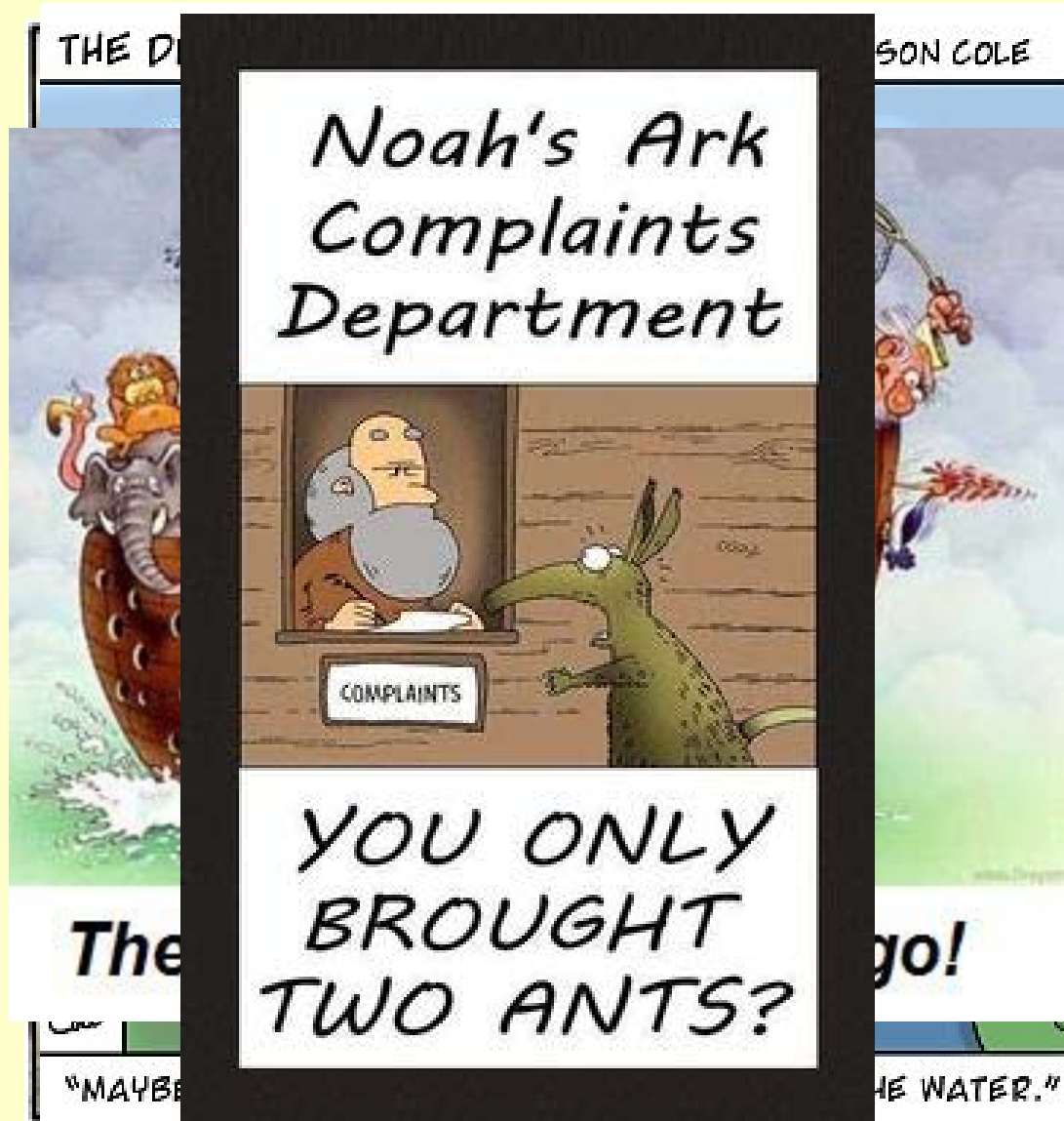
# Conservation Vision

The native biological diversity of the Commonwealth will be effectively and efficiently conserved on a **comprehensive network of protected lands**. These lands will be adequately protected, adequately managed & restored, and treasured by Virginia citizens.



**Once assembled and protected, the conservation network will create a “Noah’s Ark” that collectively includes viable populations of all native species and natural communities.**

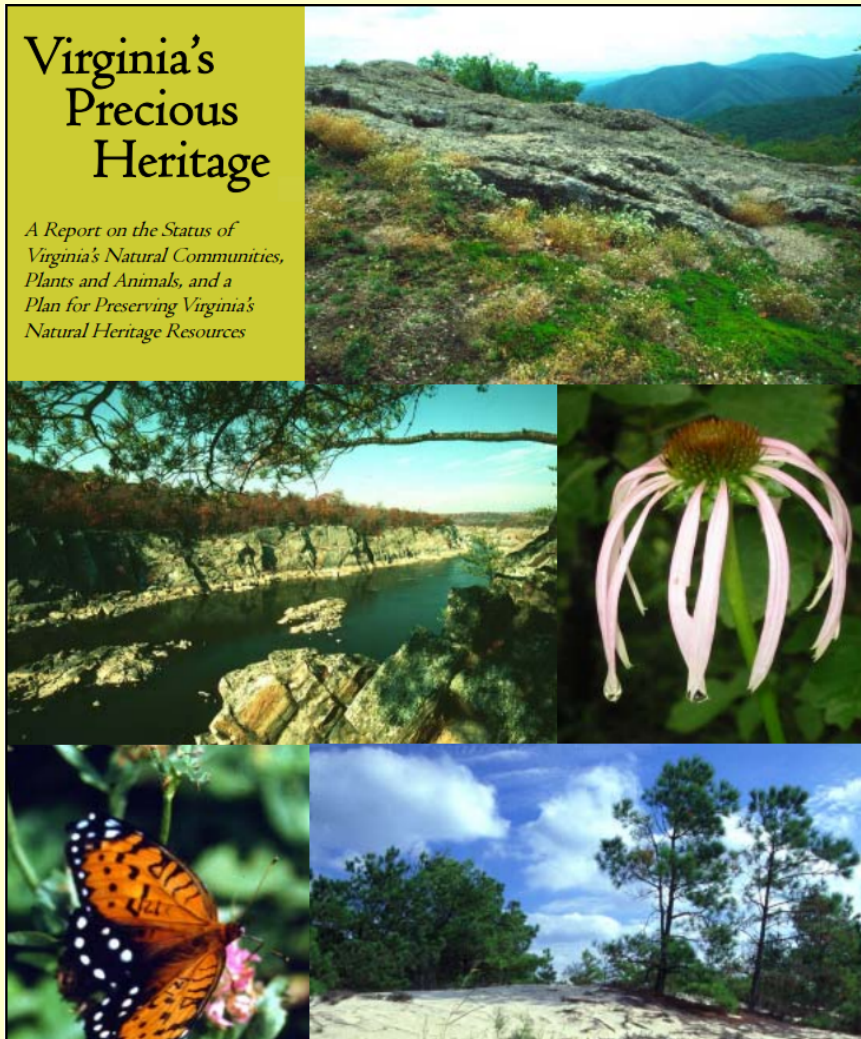
# Establishing The Perfect Conservation Network:



- Scientific Design
- Pragmatic?
- “Comprehensive”?
- Setting numeric goals



# Virginia Natural Heritage Plan (2003)



## Goal:

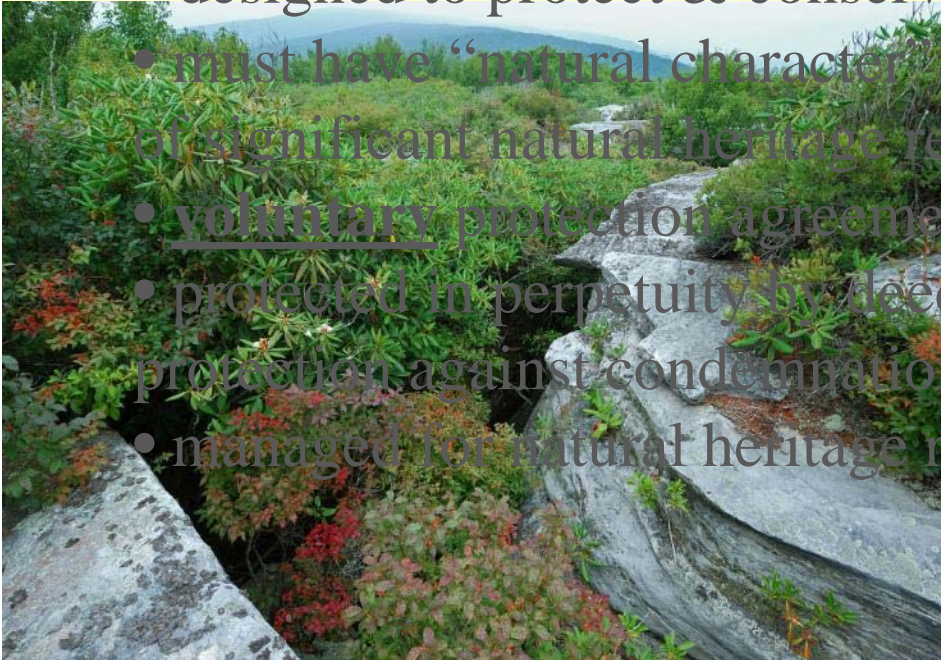
“Secure ...dedications & designations for 200 high priority natural areas across Virginia by 2006”.

## Result:

63 Preserves dedicated (DCR),  
128 Special Interest Areas (USFS)  
designated =  
191 (by 2018)

# Natural Area Preserves

- designed to protect & conserve natural heritage resources
- must have “natural character” (defined largely by the presence of significant natural heritage resources)
- voluntary protection agreement with landowners,
- protected in perpetuity by deed of dedication (statutory protection against condemnation)
- managed for natural heritage resource benefits



*Southern Appalachian Shrub Bald @  
The Channels State Natural Area Preserve  
Washington/Russell Co.*



*Shenandoah Valley Prairie Fen @  
Cowbane Prairie State Natural Area Preserve  
Augusta Co.*







# Land Protection

- 63 Preserves
- 42 DCR-owned
- \$83,740,079 value
  - 42% state funds
  - 58% non-state
- 56,650 acres
- 174 tracts



*Ellick Woodland Natural Area Preserve  
Fairfax County*

# Land Protection Grants Received (2017)

- Camp Branch – \$100,000<sub>1</sub>
- Mount Joy Ponds – \$316,400<sub>1</sub>
- Pedlar Hills – \$ 53,500<sub>1</sub>
- Antioch Pines – \$419,000<sub>1</sub>
- Magothy Bay – \$398,400<sub>1</sub>
- Difficult Creek – \$174,200<sub>1</sub>
- Grafton Ponds – \$3,600,000<sub>2</sub>
- Deep Run Ponds – \$1,627,000<sub>3</sub>
- Lyndhurst Ponds – \$4,250,000<sub>3</sub>



Mabee's Salamander – Virginia's best population will become more protected with expanded partnership & funding for Grafton Ponds

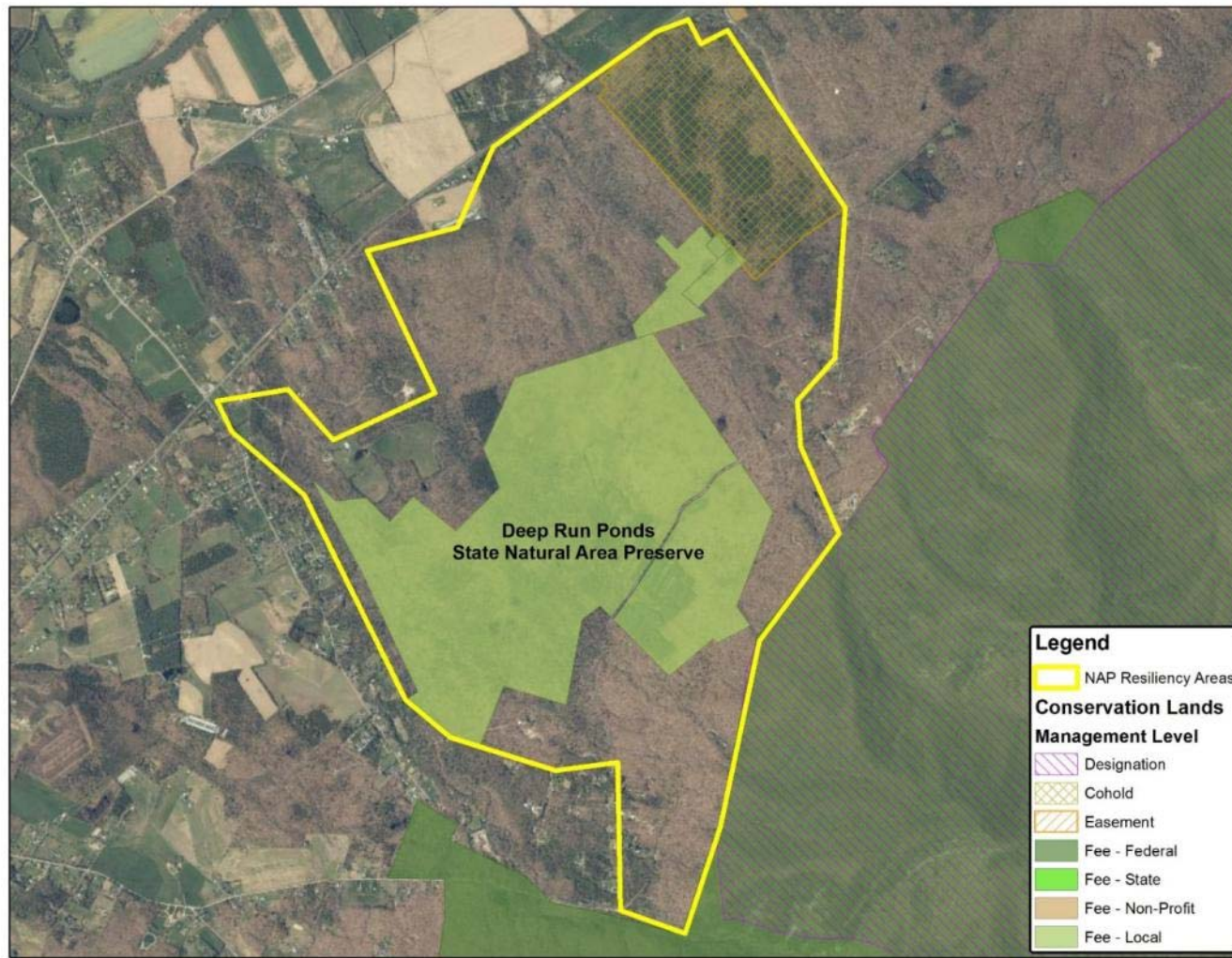


Virginia Sneezeweed – one of the significant species to be protected at Lyndhurst Ponds

<sub>1</sub> = VLCF	\$1,461,500
<sub>2</sub> = Skiffes Creek	\$3,600,000
<sub>3</sub> = DuPont	\$5,877,000



# NAP Resiliency Areas





# Natural Area Preserve System

**Strongly informed by science**

**Established in the “right” locations**

**Formal & Permanent protection**

**Actively Managed**

**Many sites owned by DCR, other sites formally designated & cooperatively managed**

**Comprehensive (no species left behind)**

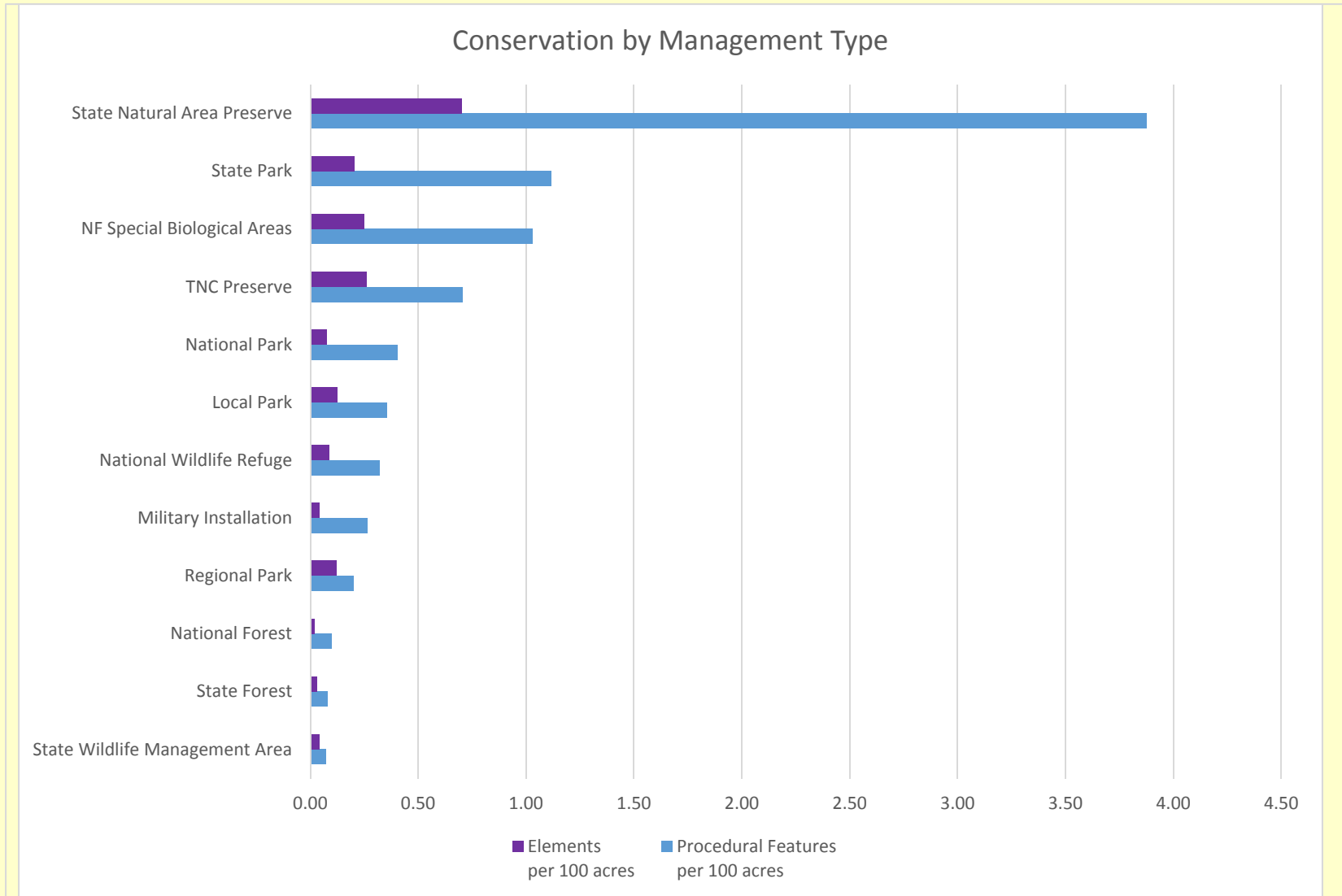
**Overall goal is to be effective, perpetual, comprehensive**

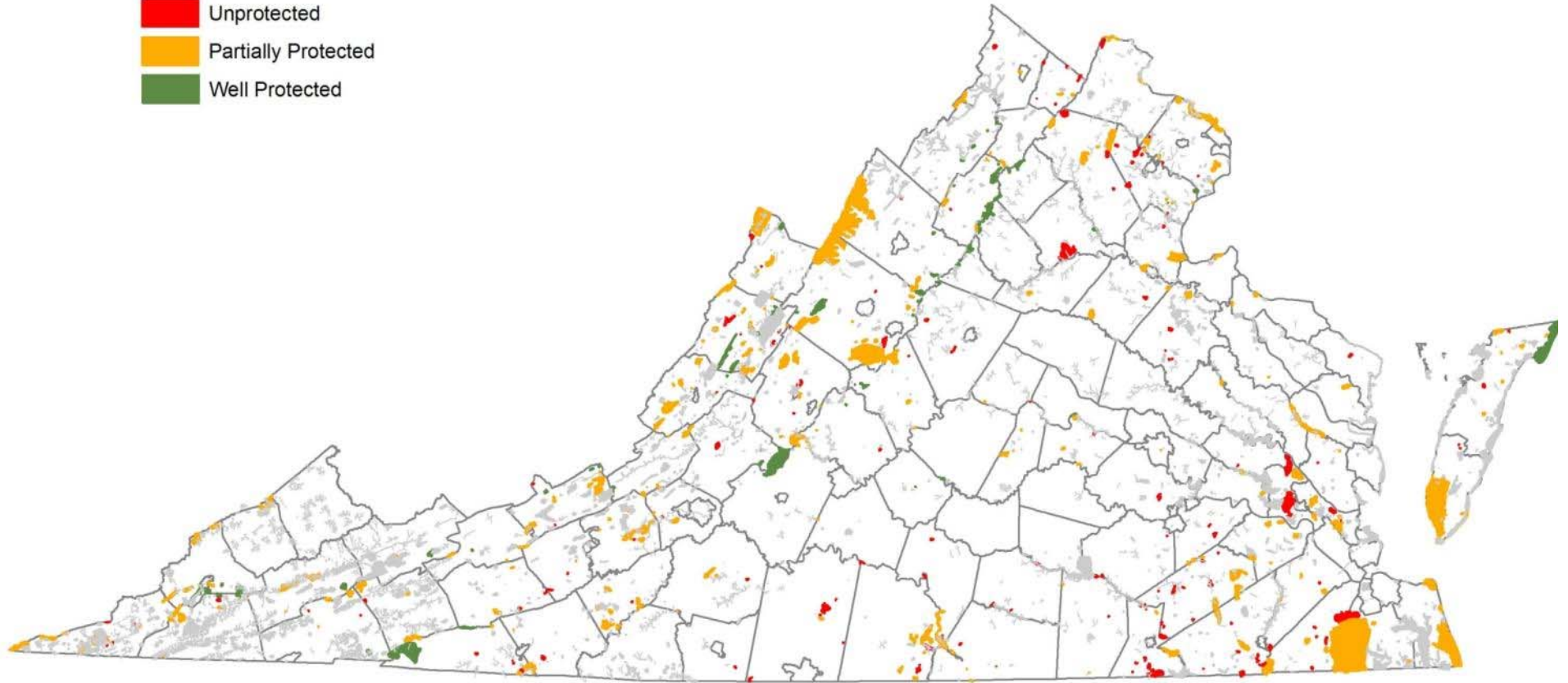
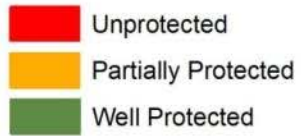
**MOST SITES DO NOT QUALIFY**



# Natural Area Preserves

## Lifeboats of hope





~ 25% sites – fully protected  
~ 54 % sites – partially protected & significant  
conservation partners exist  
< 20% sites – fully private ownership



# Do we need to buy up all the private lands?

~ 90% of VA land area (pvt)

= ~ 27 % of the NHR's

Only 2% have outstanding biodiversity significance

~ 76,000 acres of Targeted acquisitions are needed

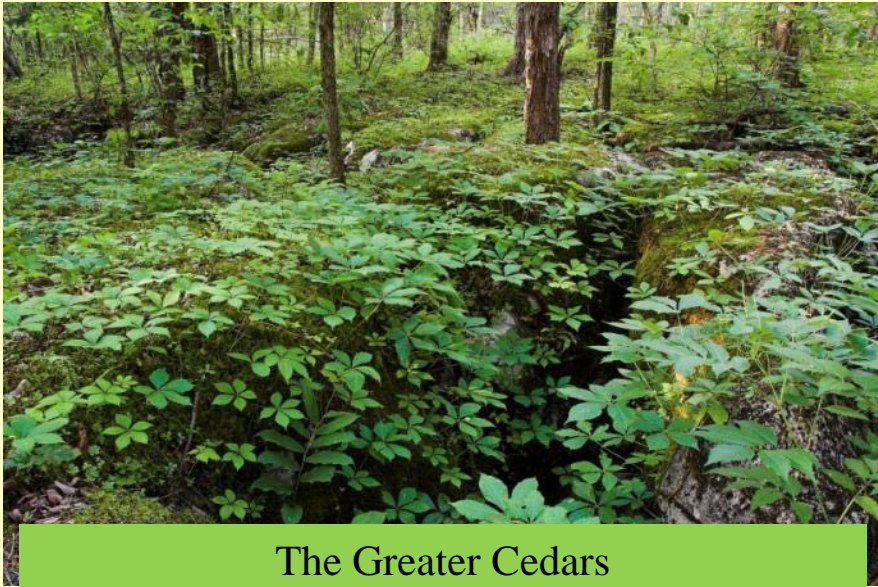


Acquiring or “setting aside” land is not  
enough.....





# Important VA conservation areas



The Greater Cedars



False Cape State Park and Natural Area Preserve



*Balsam Mountains Massif – numerically most significant biodiversity hotspot in VA*



*Potomac Gorge – 35 “best” elements present*



# Why care about “The Cedars”?

Nowhere in VA except the Cedars



Running glade clover  
(*Trifolium calcaricum*)



Hispid false mallow (*Malvastrum angustum*)



Sunflower borer moth  
(*Papaipema necopina*)



Goatweed Leafwing (*Anaea andria*)



Cane Moth (*Argillophora furcilla*)



# Fairfax County Treasures!



Rough Hedge-nettle (*Stachys aspera*) 1 of only 3 viable pops



Field Chickweed (*Cerastium velutinum* var. *velutinum*) – VA best pop; only 6 documented



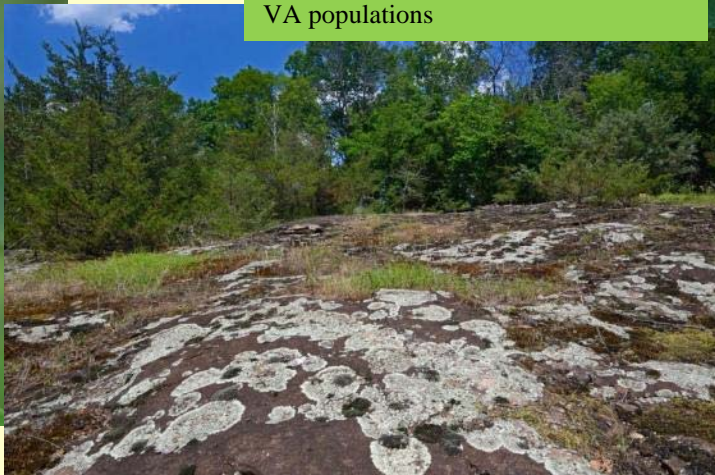
Ostrich Fern (*Matteuccia struthiopteris* var. *pennsylvanica*) – 1 of only 2 extant VA populations



Torrey's Mountain-Mint (*Pycnanthemum torreyi*)  
*Globally rare & in real trouble!*



Purple Milkweed (*Asclepias purpurascens*) – VA best



Piedmont Mafic Barren – Imperiled Globally (10 documented examples)



Pink valerian (*Valeriana pauciflora*)  
VA only extant population



# Should we protect native plants?..

## Evans family poll results:

- **Maybe, “at least the ones that have value to us”** (brother in-law, what value does he have?)
- **No, “who cares because we will all be dead and gone so why try”** (Child 1, disowned!)
- **Yes, “because we won’t have any oxygen left and they’re pretty”** (Child 2, what a good girl!)
- **Yes, “to preserve the natural beauty and the natural habitat”** (Child 3, chip off the old block)



# Is natural diversity important?



Rosy Periwinkle (*Catharathus roseus*)  
basis for Hodgkins Lymphoma & Childhood Leukemia Drugs

- ~2/3 medicine used worldwide is plant based (per Peter Raven)
- ~ 70% new drugs (last 25 yrs) are from natural products
- 50% of anti-cancer drugs since 1940

# Is natural diversity important?

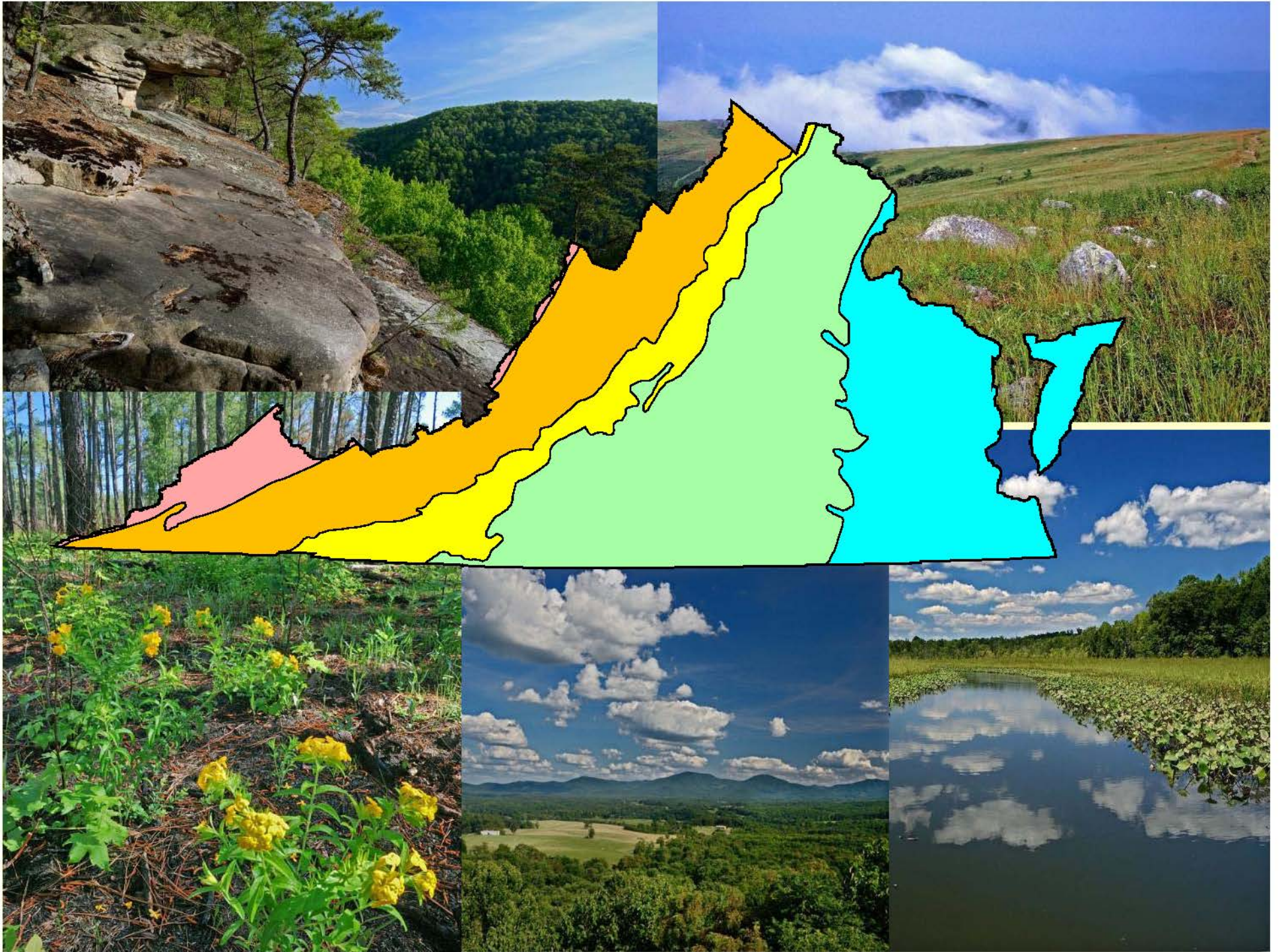


**Black Capped Chickadee:**  
require ~ 7,500 caterpillars to rear  
single chick!

96% land birds rear young  
on insects

- Where do caterpillars  
come from?
- Mainly from Native  
Plants
- Oaks are used by more  
species than any other  
trees
- Goldenrods single most  
important herbaceous  
plants









“we live in a land of vanishing beauty, of shrinking open space, ..... Despite our fee titles and claims of ownership, we are all brief tenants on this planet. By choice or default, we will carve out a land legacy for our heirs” (Udall 1969)