
The Flora and Fauna of Stony Creek Farm

Edinburg, Virginia

Chesapeake Bay Watershed

Stony Creek Farm is a third-generation farm in Virginia's Shenandoah Valley.



Photo Credit: Anne Dalke



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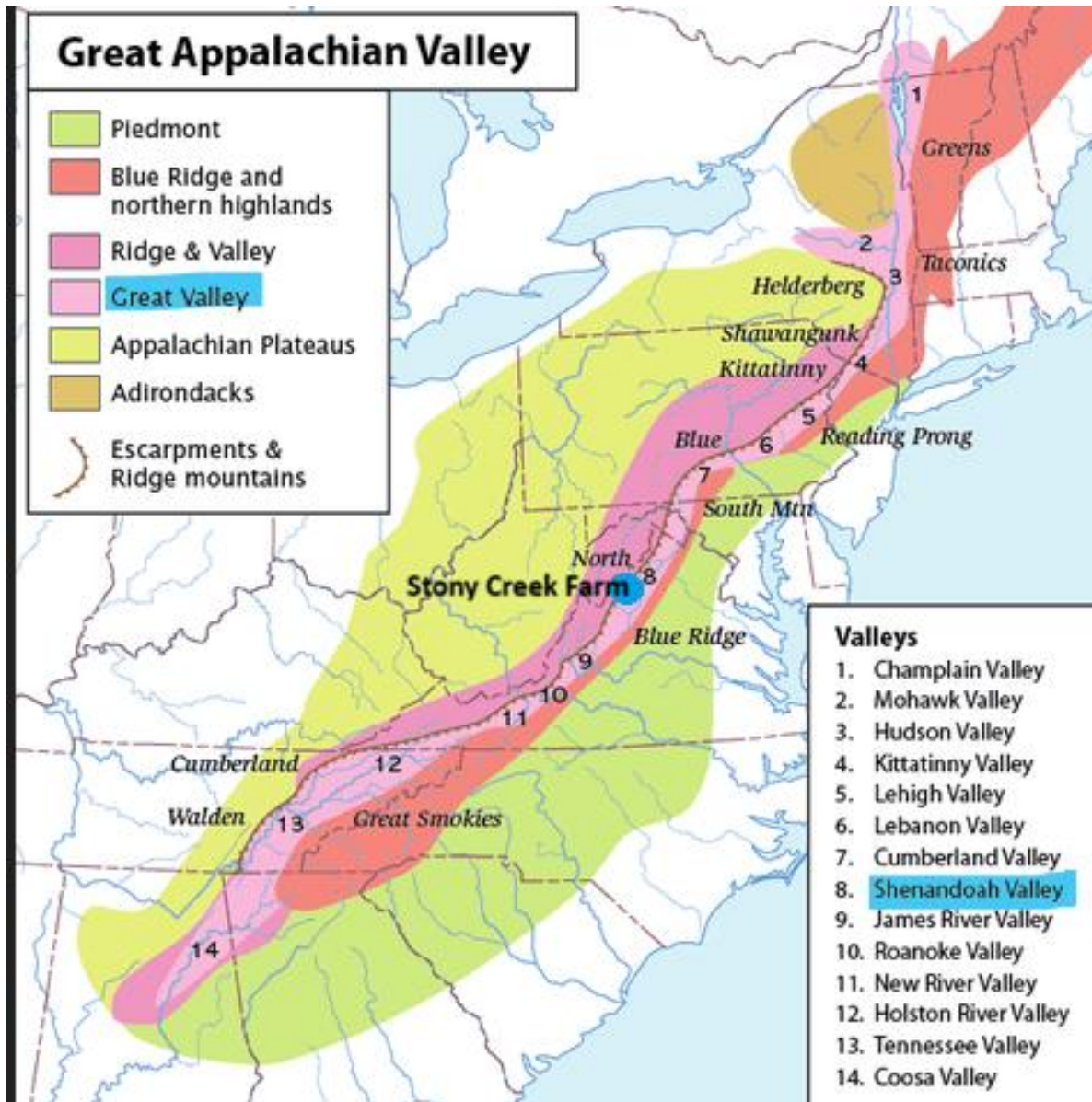
Stony Creek Farm spans 180 acres.
Farm activities include a cow/calf operation and a six-acre apple orchard.

This presentation explores the ecology of Stony Creek Farm.

Ecology (n)

- A branch of science concerned with the interrelationship of organisms and their environments (Merriam Webster).
- The study of intersections of life.
- Eco (home) + ology (study) = study of home (Cooperate Shenandoah).

Stony Creek Farm serves as a case study to consider the intersections of species within a variety of ecosystems.



Climate and topography

- Stony Creek Farm lies within Virginia's Shenandoah Valley, known as the "Ridge and Valley" region between the Alleghany Mountains and the Blue Ridge Mountains.
- It is a part of the great Appalachian Mountain chain, recognized "as one of the most climate-resilient, biologically diverse, and carbon-rich landscapes in the world" ([Nature Conservancy](#)).
- This region is one of the driest in the state, which is why it led the nation in apple production during the early 20th century (due to reduced pest pressure).

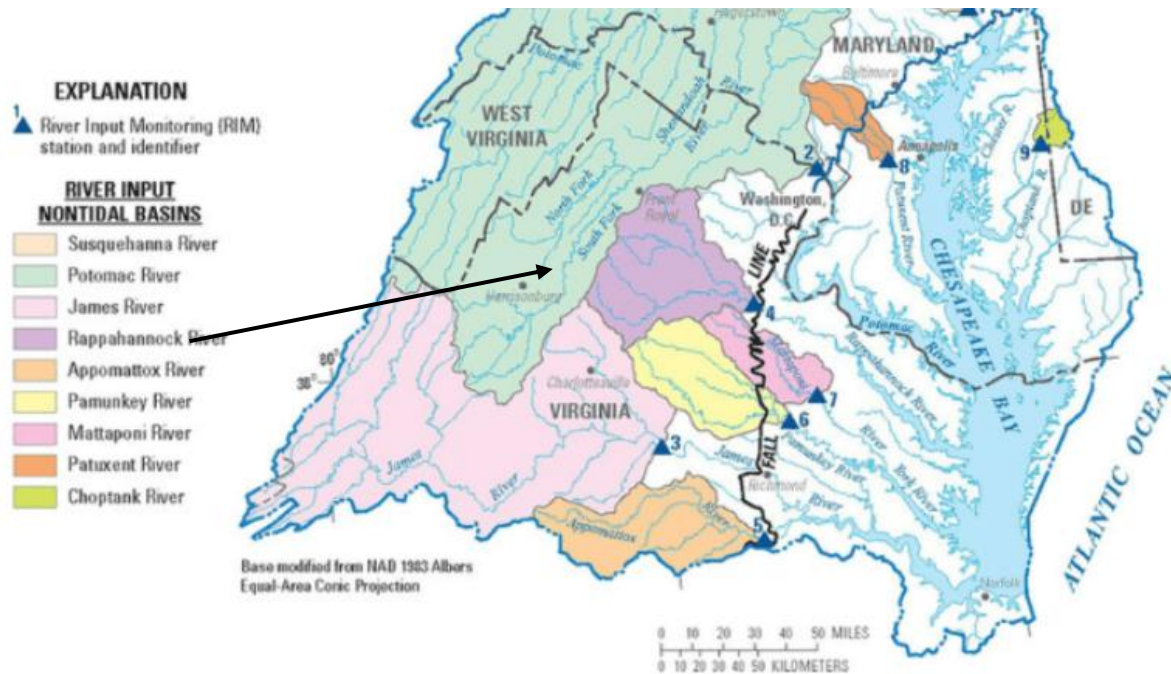


Photo credit: [Thomas Jefferson Planning District Commission](#)

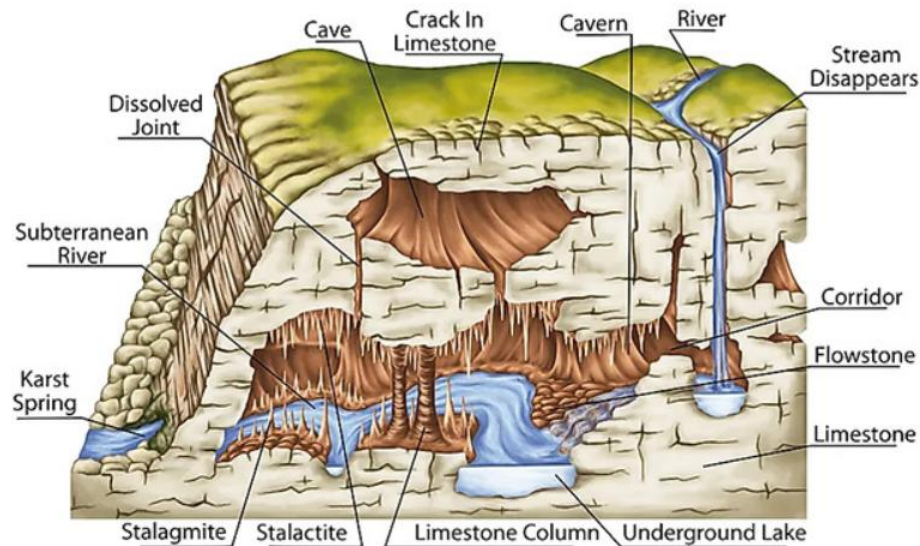
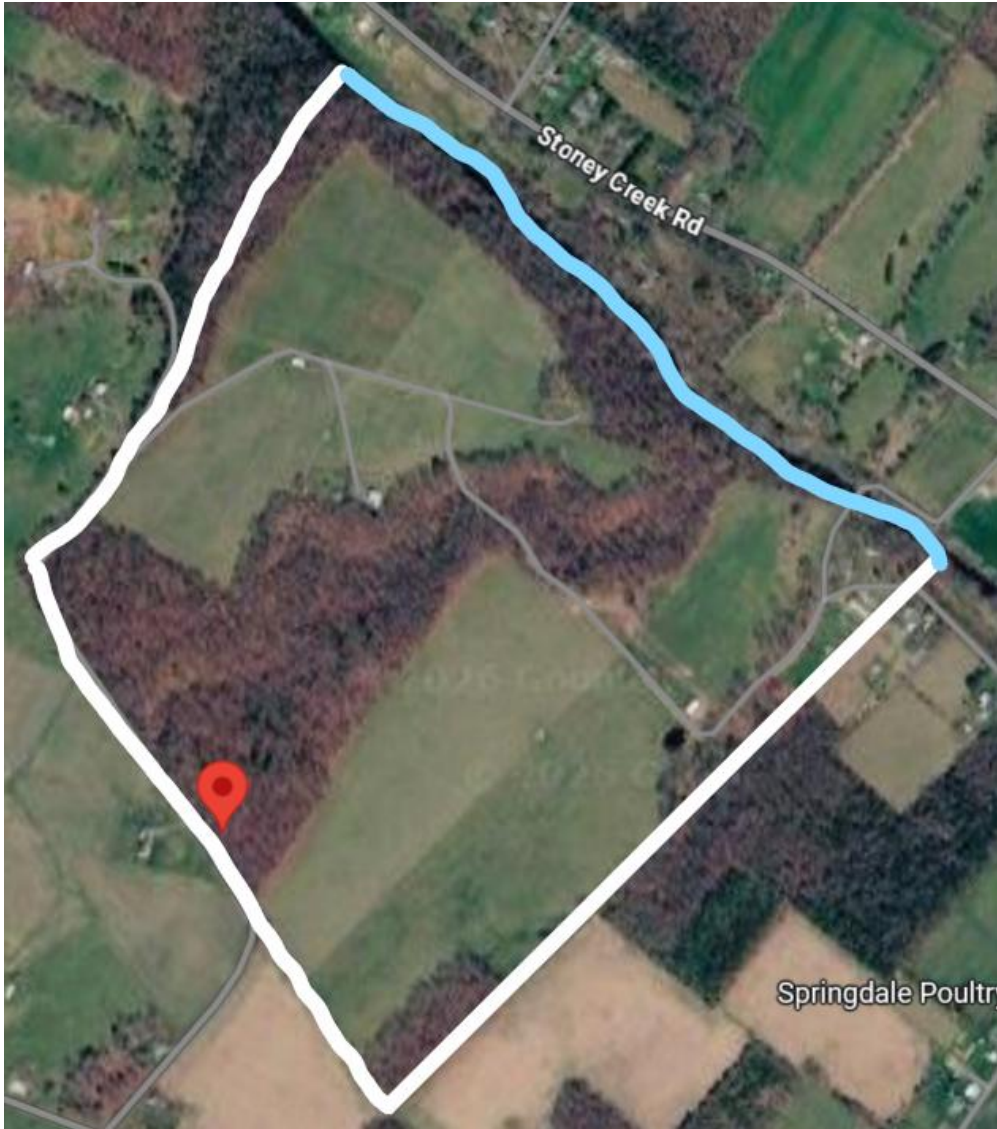


Photo credit: [Testbook.com](#)

Watershed and Geology

- Stony Creek Farm is a part of the **Chesapeake Bay Watershed**. Stony Creek is a tributary of the [North Fork of the Shenandoah River](#), which flows north and enters the Potomac River in Harpers Ferry and later empties into the Chesapeake Bay.
- The underlying geology of the Shenandoah Valley is **karst topography**. Karst topography is defined by soft limestone within a granite base. The limestone eroded overtime and created sinkholes and caves throughout the region, resulting in a foundation resembling cottage cheese.

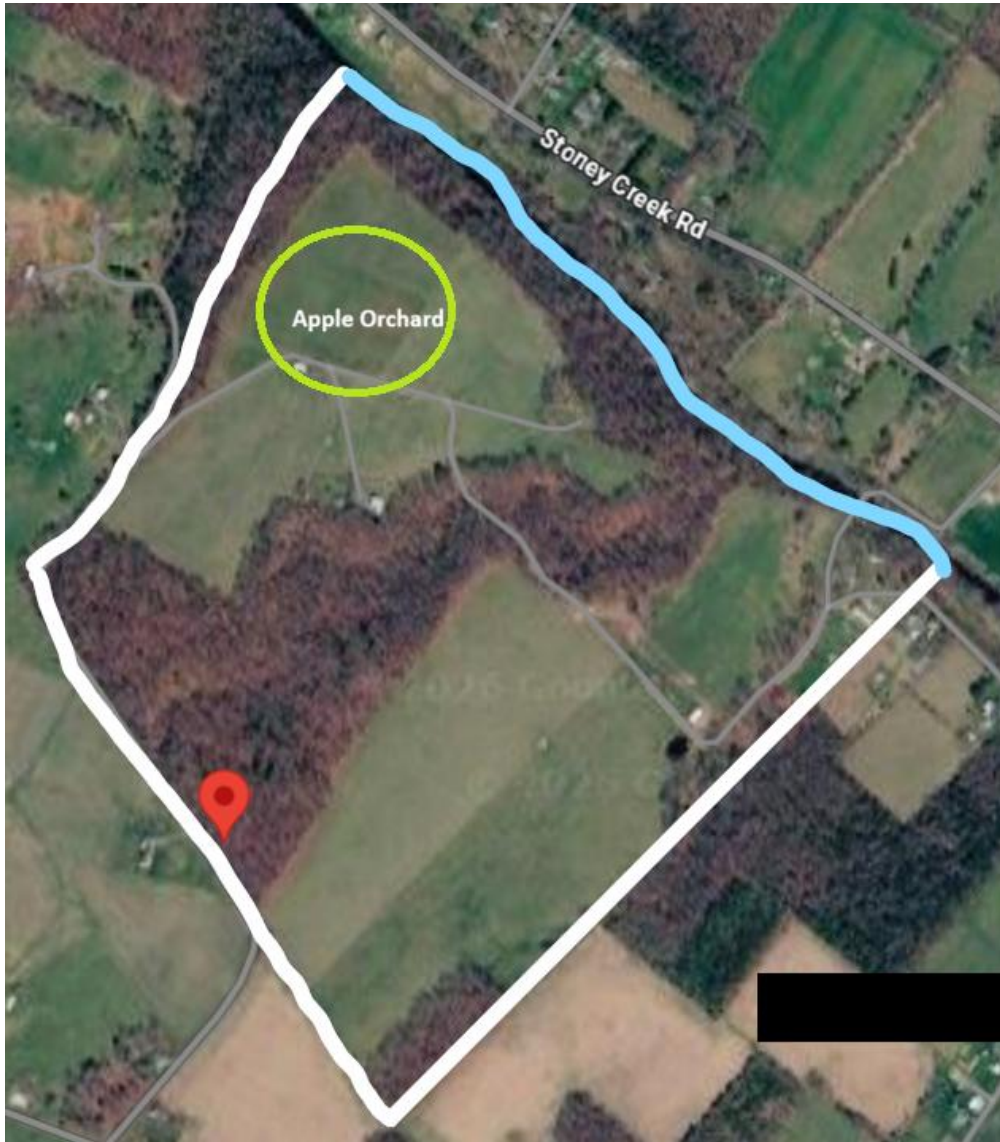


Stony Creek Farm encompasses several distinct habitats that encourage biodiversity.

Biodiversity (n)

The variety of life found within a specific region or biome.

It can also refer to the genetic variety within a particular species.



Stony Creek Farm encompasses several distinct habitats that encourage biodiversity.

Including:

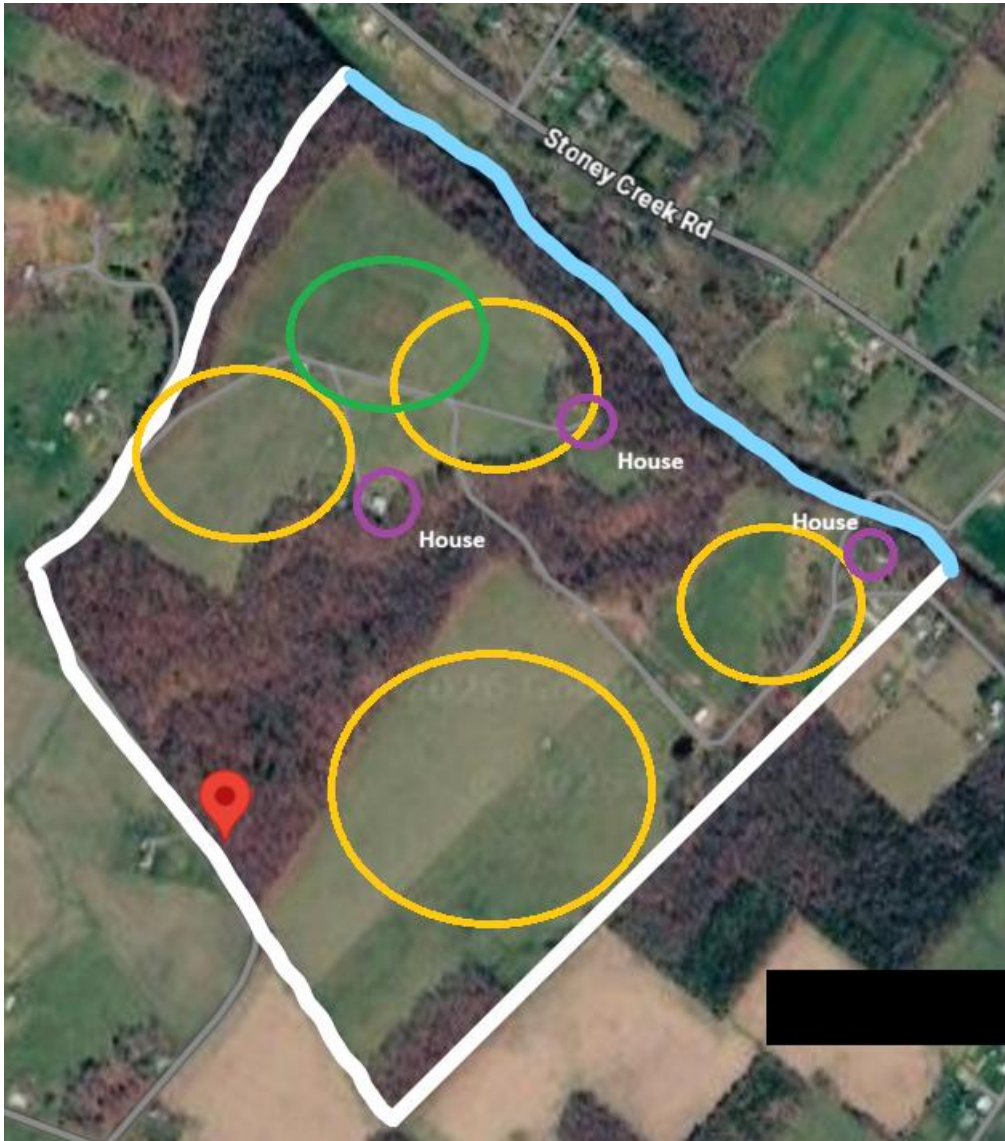
- **An apple orchard**



Stony Creek Farm encompasses several distinct habitats that encourage biodiversity.

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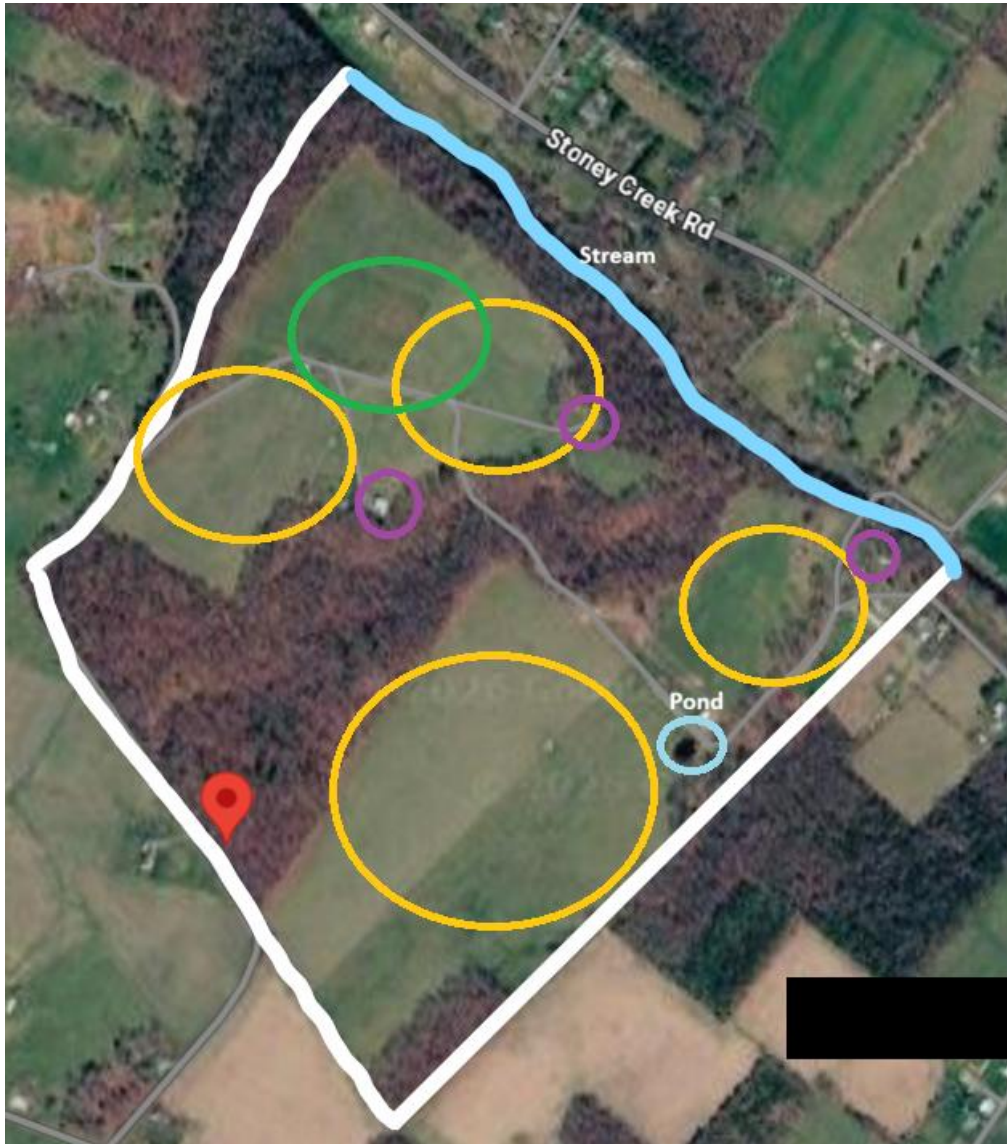
- **An apple orchard**
- **Five hayfields/pastures**



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Including:

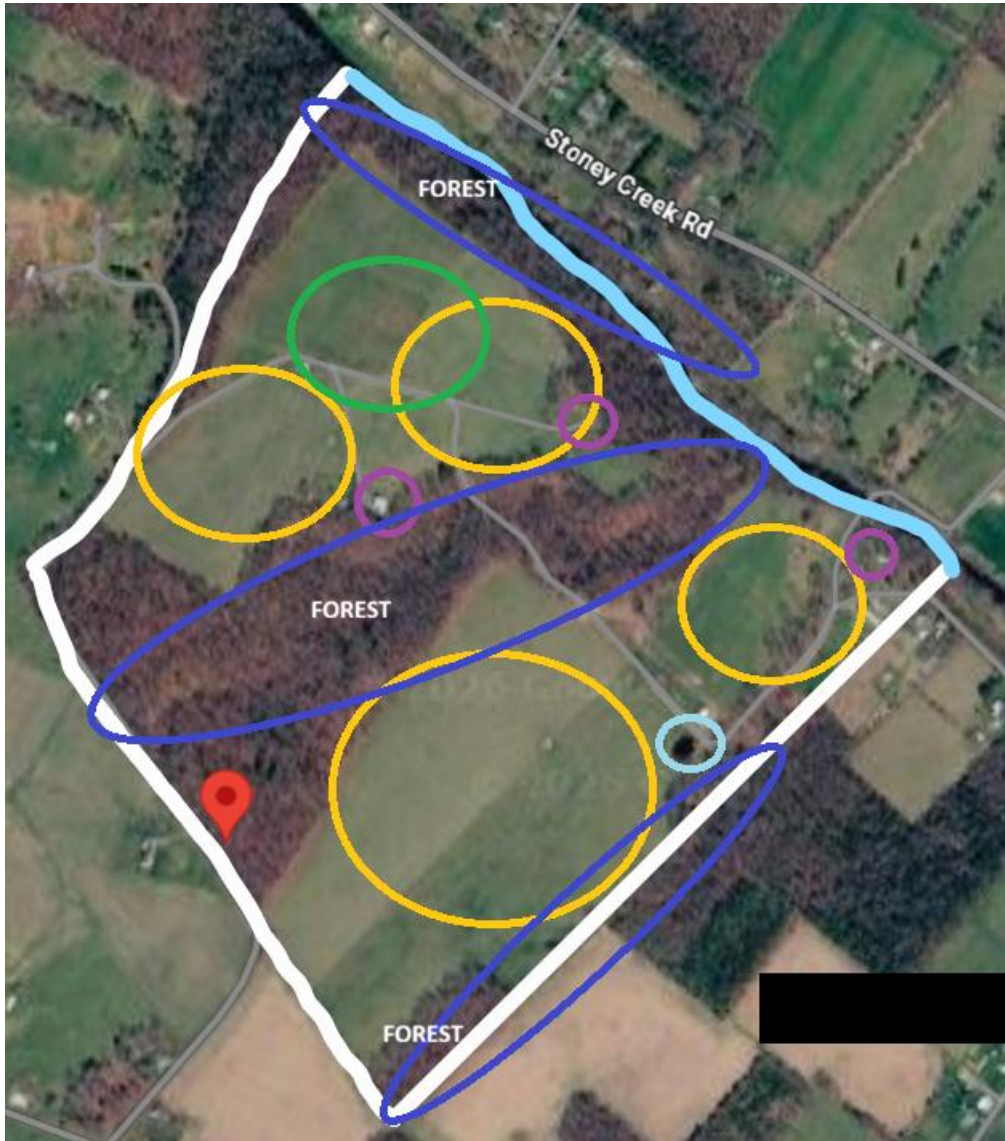
- **An apple orchard**
- **Five hayfields/pastures**
- **Three residences**



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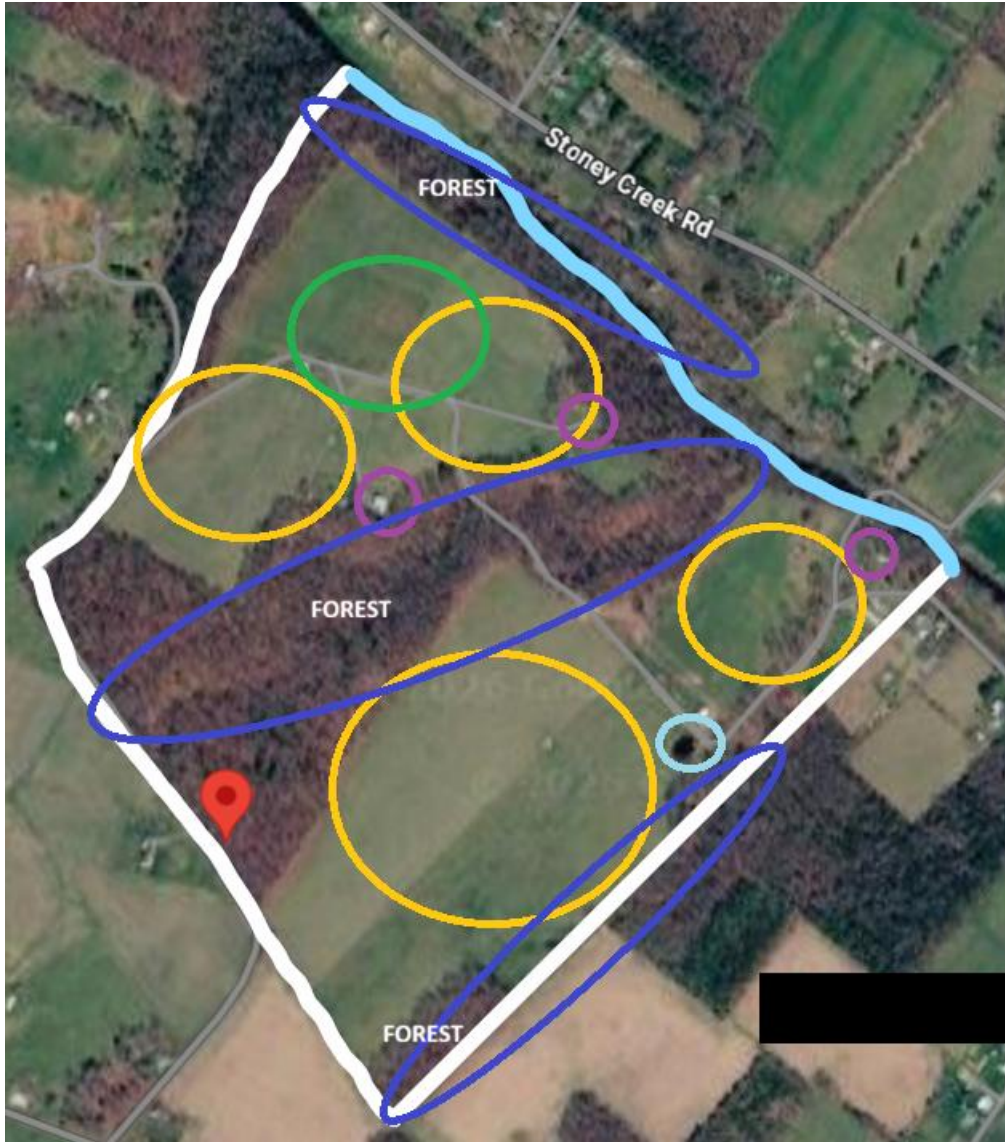
Including:

- **An apple orchard**
- **Five hayfields/pastures**
- **Three residences**
- **A stream and a pond**



Stony Creek Farm encompasses several distinct habitats that encourage biodiversity.

- **An apple orchard**
- **Five hayfields/pastures**
- **Three residences**
- **A stream and a pond**
- **Three sections of mixed hardwood forest**



The following flora and fauna species have been observed by the Dalke family over the past thirty years.

Note: An asterisk (*) indicates an introduced species.

Due to limited documentation, this presentation does not include insect species.

Apple Orchard species

MAMMALS

- Eastern cottontail (*Sylvilagus floridanus*)
- Woodland vole (*Microtus pinetorum*)



Photo credits: Animalia.bio

BIRDS

- American crow (*Corvus brachyrhynchos*)
- Yellow-bellied sapsucker (*Sphyrapicus varius*)



Photo credits: Allaboutbirds.org

Apple Orchard species

PLANTS

- *Apple (*Malus spp*).
- Comfrey (*Symphytum officinale*)
- *Dutch white clover (*Trifolium repens*)
- *Wide leaf plantain (*Plantago major*)
- Yellow dock (*Rumex crispus*)



Photo credit: Anne Dalke



Photo credits: North Carolina Extension Master Gardeners

Hayfield/Pasture Species

MAMMALS

- *Hereford cattle (*Bos taurus*)

BIRDS

- Red-tailed Hawk (*Buteo jamaicensis*)
- Turkey Vulture (*Cathartes aura*)
- Eastern Meadowlark (*Sturnella magna*)



Photo credit: Anne Dalke



Photo credits: Allaboutbirds.org

Hayfield/Pasture Species

GRASSES

- *Fescue (*Festuca spp.*)
- *Kentucky bluegrass (*Poa pratensis*)
- *Orchardgrass (*Dactylis glomerata*)
- Perennial ryegrass (*Lolium perenne*)



FORBS

- *Bull thistle (*Cirsium vulgare*)
- Carolina horsenettle (*Solanum carolinense*)
- Pokeweed (*Phytolacca americana*)
- *Shepherd's Purse (*Capsella bursa-pastoris*)



Hayfield/Pasture Species

TREES

- Black locust (*Robinia pseudoacacia*)
- *Callary (Bradford) Pear (*Pyrus calleryana*)
- Eastern red cedar (*Juniperus virginiana*)
- Green ash (*Fraxinus pennsylvanica*)



Residence species

MAMMALS

- Groundhog (*Marmota monax*)
- Striped skunk (*Mephitis mephitis*)

AMPHIBIANS

- American toad (*Anaxyrus americanus*)

BIRDS

- Eastern Bluebird (*Sialia sialis*)
- Eastern Phoebe (*Sayornis phoebe*)



Photo credits: Animalia.bio



Photo credits: Allaboutbirds.org

Residence species

PLANTS

- *Boxwood (*Buxus spp.*)
- Catawba rhododendron (*Rhododendron catawbiense*)
- *Copper beech (*Fagus sylvatica*)
- *Daffodil (*Narcissus pseudonarcissus*)
- *Sour cherry (*Prunus cerasus*)
- Witch hazel (*Hamamelis virginiana*)



Pond/Stream species

BIRDS

- Great Blue Heron (*Ardea herodias*)

CRUSTACEANS

- Eastern crayfish (*Cambarus bartonii*)

FISH

- Brook Trout (*Salvelinus fontinalis*)
- Sculpin (*Cottidae*)

REPTILES

- Wood Turtle (*Glyptemys insculpta*)



Photo credit: Animalia.bio



Photo credit: iNaturalist



Photo credit: U.S. Fish and Wildlife



Photo credit: Virginia Tech EFISH



Photo credit: Animalia.bio

Pond/Stream species

PLANTS

- Black willow (*Salix nigra*)
- Common cattail (*Typha latifolia*)
- *Multiflora rose (*Rosa multiflora*)
- Tulip poplar (*Liriodendron tulipifera*)
- Virginia Bluebells (*Mertensia virginica*)



Photo credits: North Carolina Extension Master Gardeners

Photo credit: Marian Dalke

Forest Species

MAMMALS

- Eastern grey squirrel (*Sciurus carolinensis*)
- White-tailed deer (*Odocoileus virginianus*)

AMPHIBIANS

- Jefferson salamander (*Ambystoma jeffersonianum*)



Photo credit: Marian Dalke



Photo credit: Animalia.bio

Forest Species

PLANT SPECIES (Forbs/Bushes)

- Black cohosh (*Actaea racemosa*)
- Bloodroot (*Sanguinaria canadensis*)
- *Japanese Honeysuckle (*Lonicera japonica*)
- Mayapple (*Podophyllum peltatum*)
- Rattlesnake plantain (*Goodyera pubescens*)
- Spicebush (*Lindera benzoin*)



Forest Species

TREES

- American persimmon (*Diospyros virginiana*)
- Black gum (*Nyssa sylvatica*)
- Common sassafras (*Sassafras albidum*)
- Eastern black oak (*Quercus velutina*)
- Eastern hemlock (*Tsuga canadensis*)
- Eastern red oak (*Quercus rubra*)
- Eastern white pine (*Pinus strobus*)
- Pignut hickory (*Carya glabra*)
- Red maple (*Acer rubrum*)
- White oak (*Quercus alba*)



Examples of species interactions

- Human shelters create shelters for other species:
 - The Eastern Phoebe returns each year to a nest under the eaves of the house.
 - The bluebirds build nests in the nesting boxes by the front fence.
 - The groundhog takes shelter under the shed.
- Birds assist with some pest management
 - The apple trees show signs of the Yellow-bellied sapsucker holes; this is an indication they are eating insects.
 - The Green Ash tree at Stony Creek Farm was failing due to the Emerald Ash Borer, however due to continual attention from the Yellow-bellied sapsucker, it has since recovered.

Examples of predation and parasitic species interactions

- A heron rookery was identified along the stream bank and their distinctive calls were audible until one night when there was a likely owl attack and we have not heard the heron calls since.
- Cedar apple rust is a parasitic fungi that can kill apple trees. Its primary host is the Eastern red cedar tree. In order to plant the apple orchard, my father cut down the majority of the red cedars on the farm property, though many have since sprouted.

Stony Creek Farm includes several **ecotone** areas, where species move across and through various ecological communities.

Ecotone (n)

- A transition area between two adjacent ecological communities (Merriam Webster).
- Increased biodiversity is documented in ecotone areas.

Recommendations to increase ecology at Stony Creek Farm

- Increase ecotone regions to enhance species habitats and interactions.
 - Create wildflower meadow borders between forest and pasture to provide additional habitat and blend the transitional zone between woodland and grassland.
 - Plant understory woodland botanicals for pollinator habitat and medicinal use for humans.
 - Implement silvopasture (planting of trees in grazing pasture), which provides shade and forage for livestock while increasing habitat for wildlife species. Common silvopasture species include hybrid poplar, locust (honey and black), willow, and mulberry.
- Protect existing species.
 - Meadowlark are ground-nesting birds that fledge typically by July 1; typically the first hay cut is done in May or June, which can disturb the fledglings and lead to species decline. Programs such as the Smithsonian's [Grassland Bird Initiative](#) offers financial incentives to farmers who delay their haying to allow the meadowlarks to fledge.

So much can be learned by observation and attentive witness.

Thank you for exploring the species at Stony Creek Farm with me!

For questions, contact Marian Dalke: marian.dalke@proton.me



Photo Credit Marian Dalke

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