

## Abstract

Natural lands in Virginia are under constant threat from development and climate change (Anderson et al. 2014). Undeveloped lands provide an estimated \$21.8 billion in ecosystem services annually in Virginia and are vital to the survival of the state's wildlife (Paul 2011; VDGIF et al. 2009). Conserving these lands will play a major role in protecting the environment itself, biodiversity, and economic interests as the climate changes in coming decades. Conservation easements—established when a public or private organization buys or receives a donation of select land rights such as development or subdivision rights—have become the most popular means of protecting privately owned lands (Korngold 2007).

Virginia has a well-established easement program which offers landowners a state income tax credit in return for donating land rights such as development and subdivision rights. Currently, there are inefficiencies with easements which could be lessened with reform (Owley 2011, Rissman 2011). This paper proposes that Virginia establish statewide conservation priorities and switches from a flat rate credit for easement donations to a tiered system which provides greater incentives for easements on land with high conservation value (McLaughlin and Pidot 2013). Additionally, this paper proposes that Virginia require adaptive language in easement terms and standardizes monitoring procedures.

## Protect Land in a Changing Climate

### Changing Climate, Changing Land

- Habitat loss and fragmentation already affect over 900 species in Virginia. The effects will be exaggerated by climate change and further development (VDGIF et al. 2009).
- Climate change is projected to continue at a higher rate than previously seen in human history, causing:
  - Increased rate of extreme weather events such as droughts and wildfires (IPCC 2014)
  - Biome shifts (Gonzalez et al. 2010)
- Due to the rate of predicted climate change, scientists predict that species will initially respond to through migration (Opdam and Wascher 2004).

### Troubles with Migration

- If organisms cannot migrate to suitable habitat, they cannot survive. Moderate climate change models predict 15-37% of species will be "committed to extinction" by the midpoint of the century (Thomas et al. 2002).
- Migration is impeded by loss of suitable habitat and a lack of connection between habitat patches.
- Fragmentation of habitats decreases permeability and connectedness of landscapes. Depending on the degree of fragmentation, migration can be inhibited or entirely blocked (Opdam and Wascher 2004).
- To ease the migration, habitats and connections must be conserved.

### Land Conservation through Easements

- An easement is a legal agreement between a landowners and an easement-holding organization in which the landowner surrenders limited property rights such as development and subdivision rights in perpetuity.
- Virginia offers landowners a state tax credit worth 40% the fair market value of a donated easement. Landowners with a low tax burden can sell unused credits.
- To qualify for donation, the land must meet at least one of eight conservation purposes. The terms of the easement must be set to protect that purpose of conservation (Virginia Land Conservation Incentives Act).

## Improve Conservation Efficiency

Although already a powerful tool for conservation, reform to Virginia's conservation easement program would improve the efficiency of conservation and use of public money.

### Establish Statewide Priorities & Use a Tiered Incentive System

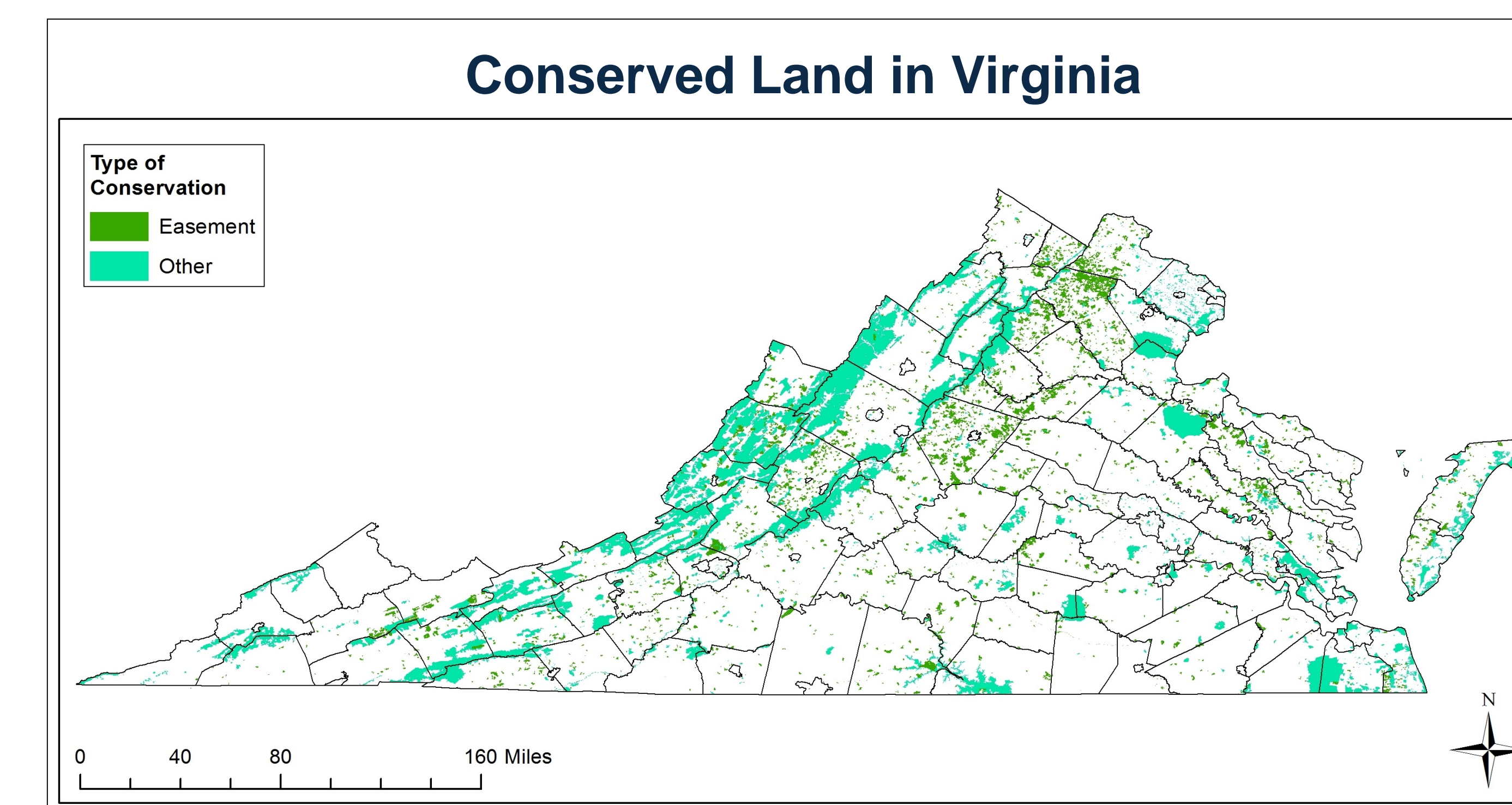
- The current tax credit system provides a flat rate state tax credit for donated easements. The incentive is the same for easements of equal market value, though they might now be equal in conservation value.
- Easements on high value lands often have higher lost opportunity costs, so owners of these lands can be less willing to give up perpetual rights than owners of land with lower conservation value (Rissman 2011). Consequentially, easements are often established in areas of lower conservation value.
- Easements form a patchwork across the state and are vulnerable to becoming habitat fragments (Fig. 1). While these patches may act as refuges for some species, their effect on the imminent climate change-caused migrations is limited as most wildlife movement occurs on a scale larger than most property boundaries (Rissman 2013).
- A tiered system which provides greater incentives for easements on land with high conservation value should increase the likelihood of landowners creating easements on high value land.
- A statewide plan which ranks and prioritizes land based on its conservation value will facilitate the tiered incentive system.
  - Include variables such as biodiversity, land resilience, threat of development, and proximity to other protected lands.
- Together, these recommended changes will hopefully influence the decision making processes to increase the likelihood of easements being established in clumps on high quality land, maximizing the ecological and public benefit .

### Require Adaptive Management Plans in Easement Deeds

- To protect the conservation purpose, easement deeds must be highly detailed to ensure that it is clear which activities are acceptable.
- Some easement holders and landowners desire strict language which clearly defines responsibilities to ensure are non-debatable by the current or future owners (T. Smith, pers. comm.).
- Static agreements greatly limit adaptation in response to climate change. This can result inefficient behaviors and burdens on future generations (Greene 2005; Richardson 2010).
- Require adaptive management plans in all easement deeds to avoid this inefficiency,
- Adaptive management plans place emphasis on the conservation purpose rather than mandating a certain means of achieving it.
- Various state agencies already incorporate adaptive plans into deeds, but this is not yet universal.

### Establish a Minimum Monitoring Requirement

- The success of easements as a conservation tool is dependent on agreeing parties following the terms of their agreement. Monitoring is necessary to ensure compliance.
- Most easement-holding organizations do regularly monitor their holdings. However, Maine is the only state with a easement monitoring requirement (McLaughlin and Pidot 2013).
- To ensure responsible stewardship, establish a minimum monitoring requirement which requires monitoring at least once per period of time.
- Monitoring for compliance brings some level of financial burden. This may have some positive effect and force easement holders to limit their holdings so they can provide stewardship to them, causing a selective pressure away from low value easements.



**Figure 1:** Currently conserved lands in Virginia form a patchwork across the state. "Other" includes lands in public and private protective management other than conservation easements such as state and national parks.



**Figure 2:** Easements and other conserved land such as Shenandoah National Park will play a large role in facilitating migration in response to climate change. Photo credit: Shane Lin, shanelin on flickr.

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