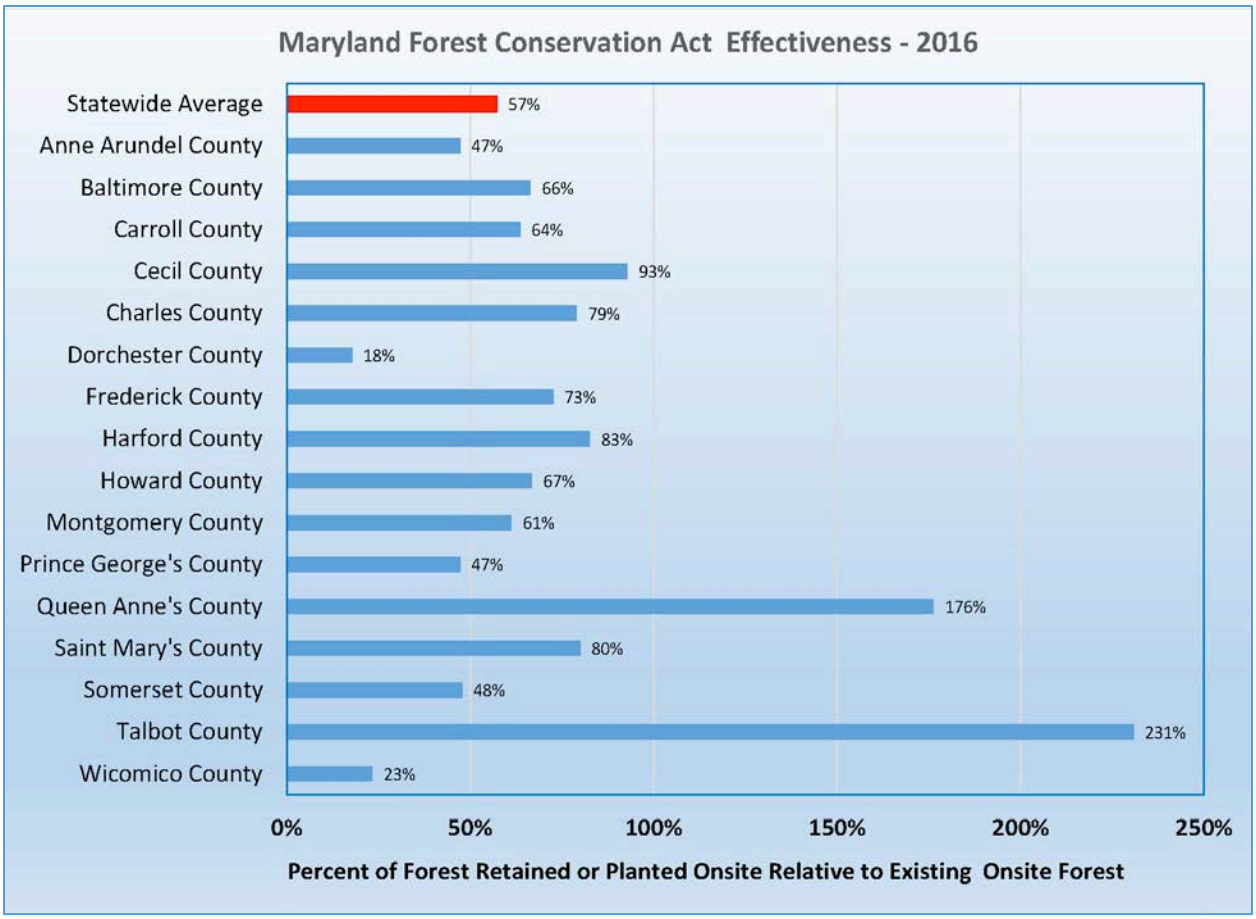
Opportunities To Improve The Maryland Forest Conservation Act

WHAT THE ACT PRESENTLY ACCOMPLISHES

Each of the 21 counties and a number of cities covered by the Maryland Forest Conservation Act must submit an annual report. An Excel file containing data from the most recent reports is posted at: http://ceds.org/audit/MarylandForestConservationActAnnualReports.xlsx. The following graph shows that statewide only 57% of the forest acreage present on proposed development sites was retained onsite either through preservation or plantings trees on unforested areas.



Following are additional statistics from the annual reports.

- 10 of 19 counties-cities achieved no net loss of forest acreage on proposed development sites in 2016,
- The no-net loss was achieved through retention of forest on development sites, converting non-forest areas on sites to forest, and offsite planting within the county-city,
- Of 1,522 projects reviewed, 58% were exempted though most of the acreage exempted was for small projects,

- Of 5,101 acres of existing forest:
  - 38% was cleared, and
  - 44% was kept in forest through retention or onsite planting then placed in long-term protection,
- 43% of forest conservation requirements were met offsite,
- Fees must be paid in lieu of retaining-planting forest onsite:
  - Montgomery County has one of the highest fees-in-lieu of onsite retention-planting,
  - The Montgomery County fee-in-lieu is $1.20 per square foot or $52,272 per acre,
  - The gross value of developable land is generally about $2 million/acre or ***40 times the fee-in-lieu***, and
  - To be successful in encouraging more onsite retention-planting, there may be a need to increase the fee rate.
- FCA Mitigation Banks: 6 in Anne Arundel County – None in Magothy or Severn watersheds while jurisdictions like Frederick County have 40.
- Data is missing or conflicting in several of the annual reports causing the totals to disagree.

OPPORTUNITIES TO REDUCE FOREST LOSS

Development is a primary cause of forest loss in Maryland. Following are some of many possible options for reducing the loss and setting Maryland on the path for a net increase in forest cover.

No Net Loss

At least one jurisdiction has established a Forest Conservation Act (FCA) policy of achieving no net loss. According to Annapolis Office of Environmental Policy Director Maria T. Broadbent, the City adopted a policy of no net forest loss several years ago. The most recent Annapolis annual FCA report shows a net gain of 4% for 2016. This includes forest conserved or planted both on and off development sites, but all within city limits.

Of the 22 annual FCA reports listed in the Excel spreadsheet, 19 contained sufficient data to determine if no net loss was achieved. Of the 19 jurisdictions, ten showed a net forest gain. While most of the ten gaining jurisdictions were smaller municipalities, Howard County more than doubled the forest present on the 132 project sites reviewed in 2016. About a third of the forest gain was achieved onsite; the rest elsewhere within Howard County.

Within Watershed Offsite Afforestation-Reforestation

While the Forest Conservation Act calls for offsite afforestation-reforestation in the same watershed, frequently the conservation occurs in another watershed. This is probably due to COMAR 08.19.03.01 which states that: "reforestation or afforestation requirement under this article shall occur in the county and watershed in which the project is located" *(see Article 10.1F, in the Model Ordinance)*. Somehow "County" has come to be accepted as the hard requirement while "in the same watershed" seems to be routinely ignored.

It is unclear if the Act and COMAR refers to the six- or eight-digit subbasins in the definition of "watershed". There are, respectively, 19 and 138 six- and eight-digit watersheds in Maryland. My vote would be for the eight digit though I suspect most counties are seeking to comply with offsite afforestation-reforestation in the same six-digit watershed.

There are six banks in Anne Arundel County and all in the south county. Planting trees in these banks does nothing to resolve the impact of forest loss, say, in the Magothy or Severn watersheds. A map on page 163 of a 2010 article showed that while Carroll County had a number of banks, none were located in the Gunpowder or South Branch Patapsco watersheds. Frederick County has about 40 bank sites. The listing of Frederick County banks contains considerable information but not the watershed in which each is located.

We need to find ways of achieving offsite mitigation in the same watershed as the projects reducing forest cover in each watershed.

Minimum Watershed Forest Cover & Aquatic Resource Health

There's a substantial body of research showing the close correlation between watershed land use and aquatic resource health. The table below presents the findings for one of the more comprehensive studies of stream ecosystem/watershed forest-impervious area relationships. Note that Good quality is achieved between 37% and 45% forest cover, or about 40%.

Stream Health Rating	Suited For	Impervious Area	Watershed Forest Cover	Portion of Streams with 100-Foot Forest Buffer
Excellent	Highly-sensitive ecosystems & all human uses	4%	51%	77%
Good	All human uses	5%	45%	71%
Fair	Unfit for swimming-wading	14%	37%	63%
Poor	No human uses	20%	30%	26%

Source: IKONOS Imagery for Resource Management: Tree Cover, Impervious Surfaces, and Riparian Buffer Analyses in the Mid-Atlantic Region

The Excel file posted at the following link shows the watershed forest cover for 38 Maryland river basins: http:/ceds.org/audit/WatershedForestCover.xlsx. Of these 38 basins, all but 16 have a forest cover of 40% or greater.

Preserving forest alone is not enough to prevent watershed development from degrading streams, estuaries and other aquatic resources. However, if the goal is to maintain a resource in good to excellent condition then a minimum of at least 40% of a watershed must be in forest and limits must be imposed on impervious area ***or*** they must drain to highly-effective BMPs.

I believe we should strive to restore all our watersheds to at least a condition suited for all human uses or "Good." This goal requires a minimum 40% watershed forest cover. We must assume that MS4 and other programs will eventually ensure that runoff from all impervious surfaces drains to BMPs that are so highly-effective that they negate stormwater impacts.

One option for easing into this approach would be a tiered goal of achieving a forest cover that would make it possible to upgrade a waterway to the next higher quality rating. For example, with a watershed forest cover of 9%, Back River is in the Poor category. The tiered goal would be to increase forest cover to above 30% setting the stage to achieve Fair quality.

Incentives for Less Grass More Trees
While we tree-huggers seek the goal of more forest after development, most approaches require fewer homes or less commercial space which then necessitates a battle with the development industry, MACO and others. There's a possibility we might achieve the goal by working cooperatively with development-real estate interests by focusing on options to reduce grass in favor of more trees.

What if we could come up with incentives for reducing lawn area in favor of trees or ground covers that do not require fertilizers (nutrients), pesticides or mowing? The incentives could be based upon reductions in pollution-runoff volume and might take several forms, most of which are likely to be controversial.

A limited analysis of the nutrient benefits of this approach can be found in Table 6 and the graphs on page 14 of the Montgomery County Environmental Site Design Audit. For some examples of how other states have approached this issue see: Turf Removal & Replacement: Lessons Learned. Don't let the gloomy California lesson learned be a discouragement. I think the California folks are on the right path. There's also some interesting ideas in Guidelines for Developing and Evaluating Tree Ordinances.

Forest Mitigation Sites
The Forest Conservation Act allows a developer to pay a fee-in-lieu of meeting requirements on site. The fee is then used to plant trees elsewhere within the same jurisdiction.

My impression has been that most local jurisdictions have difficulty securing forest mitigation bank sites. And these sites are seldom in the same watershed as the location where forest cover was reduced. For example, there are six banks in Anne Arundel County and all in the south county. Planting trees in these banks does nothing to resolve the impact of forest loss, say, in the Magothy or Severn watersheds. Studies referenced above show that a minimum percent of a watershed must have forest cover if aquatic resource health is to be maintained.

The most recent forest conservation act annual reports show that statewide about $3 million of fees were paid to local governments in lieu of onsite retention-planting. Of this only a third was expended, leaving $2 million "available." One possible option for getting more mitigation sites and creating an incentive for more on-development-site forest or ground cover would be to use fee-in-lieu of funds to pay developers who reduce lawn in favor of trees/ground-covers in excess of requirements. This approach could work if localities have accumulated surplus funds that go unspent because of a lack of banks. Otherwise an increase in fee-in-lieu of amounts may be needed.

Fee-In-Lieu Amounts
The most recent forest conservation act annual reports show that the amount developers pay in-lieu of meeting forest conservation requirements on a site ranges from $0.10 to $1.50 per square foot and averages $0.57. That equates to $4,356 to $65,340 per acre. Given that the profit from converting that acre to homes, businesses, etc. is far in excess of the fee-in-lieu amount – ***up to 40 times higher*** - many developers likely opt to pay it. I suspect that a comparison of jurisdictions with a low fee-in-lieu will reveal substantially less afforestation-reforestation when contrasted with those that set the fee above the $0.57/square foot average. If this is the case then this data may support an argument that the fee should be higher. If developers are allowed to be paid for afforestation-reforestation in excess of what's required, then this might weaken industry opposition.

Assessing Forest Conservation Act Compliance in Your Area
Significant compliance issues exist with most of our Clean Water laws. Fortunately, it is easy to assess compliance. Unfortunately, very few organizations appear to do so within the watersheds or other areas they serve. As a result, compliance shortfalls can drag on for a decade or more before anyone notices then acts to resolve the issue. Following are links to three reports illustrating how you can easily assess compliance in your watershed-service area:

- Montgomery County Environmental Site Design Audit (p. 8-12),
- Severn River Watershed Audit (p. 28-29), and
- Corsica River Watershed Audit (p. 29-31).

App for Examining Effect of Varying Requirements & Verifying Developer Worksheet Computations
The Forest Conservation Act requires forest retention or onsite tree planting for 15% to 50% of a development site. CEDS created an Excel application for assessing the effect of varying these requirements and is posted at: http://ceds.org/audit/CEDS_ForestConservationApp.xlsx

The app contains a modification of an application we use to evaluate the effect of modifying development designs on forest conservation requirements. With the modified app you can examine the effect of varying FCA requirements for specific development scenarios.

The variables you can change are those highlighted purple in the *Variable* column. The column headed *Your Scenario* allows the user to input a number of different values to examine the effect on any development type.

Three examples were used to test that the modified app is accurate:

- The sample worksheet in Figure 3-10, of the MD FCA manual, and
- Two examples from the CBF Citizens FCA Guide.

The analysis tool was then applied to two projects listed in the Howard and Anne Arundel County annual reports:

- Howard County Elkridge Fire Station, and
- Anne Arundel County Carrolls Creek Condo

When approved the Howard County project resulted in a 5% reduction in the existing forest on the 5.7-acre site. The following variations would have required creating more forest than existed on the site predevelopment:

- Increase the planting ratio for clearing forest:
    - Above the conservation threshold from 2.0 to 2.5, and
    - Below the conservation threshold from 0.25 to 0.5,
- Raise the conservation threshold from 20% to 25%.

For the Anne Arundel County project an increase in forest was only achieved by increasing two variables:

- Raising the conservation threshold from 20% to 25%, and
- Increasing the above conservation threshold clearance planting ratio from 2.0 to 3.0.

The app can also be used to verify developer computations of onsite retention and planting requirements.

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