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DEPARTMENT OF FORESTRY**

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October 15, 2021

Honorable Janet D. Howell, Chair
Senate Finance and Appropriations Committee

Honorable Luke E. Torian, Chair
House Appropriations Committee

Dear Chairman Howell and Torian;

Attached is a report on the proposed incentive program for the Hardwood Forest Management program as required in Appropriations Act Chapter 552, Item 307; 3 L.
Please contact me if you have any questions about the report or program.

Sincerely,

A handwritten signature in black ink that reads "Rob W Farrell". The signature is written in a cursive, flowing style.

Robert W. Farrell
State Forester

Report on the Proposed Incentive Program
for Hardwood Forest Management

Appropriations Act, Chapter 552, Item 107; 3 L

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Report on the Proposed Incentive Program for Hardwood Forest Management
Prepared for Chairs of the House Appropriations and Senate Finance Appropriations
Committee

By The Virginia Department of Forestry

October, 2021

The Budget Bill of the 2021 Virginia General Assembly established funding for a Hardwood Forest Habitat Initiative. As part of the Bill, the State Forester is directed to provide to the Chairs of the House Appropriations and Senate Finance Appropriations Committee this report on the proposed landowner incentive program for hardwood forest management identifying (i) potential hardwood forest operators eligible for participation in the program; (ii) effective forest management practices and potential landowner incentives; (iii) the amount of revenue collected annually from existing hardwood forest operations subject to the Forest Products Tax pursuant to Chapter 16 of Title 58; and (iv) the estimate annual costs and long term benefits of the Hardwood Forest Habitat program.

- i. **Potential Hardwood Forester Operators eligible for participation in the program:** The State Forester and Department of Forestry (VDOF) staff have developed procedures for the landowner incentive program. The program will be called the Hardwood Habitat Incentive Program (HHIP). Eligibility criteria will be as follows:
 - Private forest landowners in Virginia
 - A minimum of five acres and a maximum of 100 acres per landowner per year
 - Landowner agrees to keep practice in place for a minimum of 10 years
- ii. **Effective forest management practices and potential landowner incentives:** The type of forestry practices qualifying for HHIP assistance will include any method recommended by the Board of Forestry and approved by the State Forester and will initially include:
 - Liberation, controlling live, standing trees and/or shrubs following a timber harvest operation, by means of chemical, mechanical or hand methods.
 - Crop Tree Release (CTR), controlling competing vegetation from three to four sides of a tree identified to be grown until the final harvest, by means of chemical, mechanical or hand methods. Primarily applied during the stem exclusion stage.
 - Timber Stand Improvement (TSI), controlling less-desirable trees, vines, and occasionally large shrubs to achieve the desirable stocking of the best-quality trees by means of chemical, mechanical or hand methods.
 - Prescribed Burning (including firebreak construction), the skillful application of fire to natural fuels that will allow confinement of the fire to a predetermined area and at the same time will produce certain planned benefits. Firebreak, a constructed barrier utilized to stop or check prescribed fires in the predetermined area, is included with this practice.
 - Stand Marking (Professional Forester), the process of indicating what trees are to be cut or otherwise treated, usually done by one spot of paint between eye level and the base of the tree.

- Competing Vegetation Control (invasive or native), managing vegetation that impedes development of the desired trees by means of chemical, mechanical or hand methods.

The initial assistance rates per project type are:

Table 1. FY 2022 Hardwood Habitat Incentive Program Project Summary and Rates	
Project type	Rate: 60% of Cost, Not to Exceed
Liberation Cut (eliminate poor quality trees following harvest)	\$85.00/acre
Crop Tree Release (CTR)	\$80.00/acre
Timber Stand Improvement (TSI)	\$85.00/acre
Prescribed Burning (including firebreak constructions)	\$25.00/acre
Stand Marking	\$40.00/acre
Competing Vegetation Control (invasive or native)	\$80.00/acre

iii. The amount of revenue collected annually from existing hardwood forest operations subject to the Forest Products Tax pursuant to Chapter 16 of Title 58

The five year average of the hardwood portion of the Forest Products Tax is \$338,196. The most current year information (FY2020) is \$313,575.

iv. Estimated annual costs and long term benefits of the Hardwood Forest Habitat Program

Below is a breakdown of the first year (2021-22) costs of the Hardwood Forest Habitat Program:

Table 3. Hardwood Forest Habitat Program Costs 2021-2022	
Category	Amount
Landowner Incentives	\$350,000
VDOF Hardwood Coordinator (includes salary, fringe and indirect)	\$128,408
Supplies	\$ 4,434
Vehicle (first year only)	\$39,000
Total, VDOF budgeted amount	\$521,842
Estimated DOF implementation cost	\$127,604
Total estimate FY22 Cost	\$649,446

The direct annual cost for the program will be the total, less the one time vehicle purchase or \$482,842. Other cost will be that for agency foresters to service the projects through inspections, data collection, and landowner interaction, and VDOF finance staff to process applications and payments. As the program is just beginning, we do not have an actual number of projects, acres, or VDOF time invested. But, an estimated accomplishment of 146 projects, with an average size of 30 acres per project would result in 4,400 acres improved. Agency costs include field and administrative staff time, fringe, and overhead. Again, the program is just beginning but a cost can be estimated based upon agency time and cost associated with similar VDOF incentive programs. This DOF implementation cost per project is \$875 or, based upon 146 projects, a cost of \$ 127,604.

Long term benefits:

The program will foster more healthy, diverse, productive and resilient forests along with improved wildlife habitats. Hardwood forests are by nature, long term and current treatments will result in long term improvements and gains. Hardwood forest managers recognize this and the planning horizon involves growth through the cycle of a hardwood forest, often 80 to 100 years or more. The practices will affect overall tree condition and health, promote better tree growth and favor tree species more suitable for wildlife habitat, timber and diverse stands of native trees. Investments made today will positively influence conditions for decades.

Hardwood forests provide a variety of benefits including habitat, watershed protection, aesthetic values, recreational opportunities, carbon capture, as well as production of forest products. The benefits are highly important. However, they are not easily monetized. There are many variables that affect forest conditions and the resulting benefits, including site and soil conditions and past management and use. Because of this, the benefits discussion will focus on how the planned practices will affect and achieve improvements in the following desirable forest stand conditions:

- Tree density, stocking, and distribution and arrangement. Stands with optimal density exhibit good growth, vigor, health and value potential.
- Tree species composition that best meet objectives and site conditions
- Competition to desirable trees is minimized
- Regeneration of a new stand of trees is assured when appropriate

Below are the practices initially available through the program and desirable outcomes and benefits that will result from application of these practices.

- a. **Liberation cut:** This practice removes trees of poor quality or species, unhealthy, or damaged trees left following a harvest and liberates young, vigorous and healthy trees by providing them with freedom to grow and thrive. Untreated, such sites seldom yield desirable benefits. This treatment is done in the beginning stage of a new stand and helps to assure establishment of a high quality and vigorous stand of desirable tree species. The benefit of this practice will carry through the entire life of the stand.
- b. **Crop Tree Release:** Crop trees in younger forests are chosen because they are the best and most desirable species or individuals to meet the specific stand objective. Competing trees

- around them are cut or controlled, resulting in stronger and more robust growth, health, and development of crop trees. This practice is done at an early age of hardwood stand development (age 10 to 20). It favors and increases growth on the best trees, resulting in long-lasting benefit through the end of the growth cycle, often an additional 60 to 70 years. While the term 'crop tree' typically refers to a timber income objective, this practice is also effective for promoting desirable trees for other landowner objectives such as increasing nut production for wildlife.
- c. **Timber stand improvement (or forest stand improvement).** This practice benefits stands and desirable trees by removing or controlling trees or other plants that may be impeding or affecting their development. The practice can be implemented during various ages of stand development including young, intermediate-aged, or older stands. It can serve to enhance the growth and health of the best trees by removing those which would impede them. When implemented later in the life of the stand, it can be important for creating conditions that are favorable for naturally establishing new trees (regeneration) for the next stand. By doing so, this benefit extends toward the next generation of hardwood forests.
 - d. **Prescribed Burning:** Prescribed, or controlled burning can be a useful tool to assist in stand development in several ways – to favor tree species composition that favor fire-adapted species like oaks; to reduce less-desirable trees or plants. It can be used to prepare and encourage conditions favorable for regeneration of a new forest; create favorable conditions for many wildlife species and non-forest plant communities; and to help manage fuel levels that may aid in reducing damage should wildfire occur. Prescribed burning can be very cost-effective when compared to other methods to achieve desirable stand conditions.
 - e. **Stand Marking:** While not an actual stand treatment, this practice involves having a forestry professional designate (mark) trees to remove, or leave before any practice is applied. This assures proper implementation of the prescription to achieve the desired stand condition.
 - f. **Competing Vegetation Control:** Competing vegetation (invasive or native) can significantly impact or even prevent achieving landowner objectives. Removing competing plants can be done at any stage of stand development as needed, potentially providing many years of benefit.

Benefits Discussion:

Direct benefits: The hardwood incentive program will offset a portion of landowner costs for implementing recommended practices. In the first year, \$350,000 will be allocated for cost assistance payments to participating landowners, a direct benefit to participating landowners. The program will cover 60 percent of project costs, so the landowners will contribute an additional 40%, or approximately \$233,000, for a total direct investment of \$583,000 or benefit is anticipated in the first year of the program.

Financial benefit to landowners: As noted, long term financial analysis can be difficult to accurately determine due to the highly variable nature of hardwood forests, and the difficulty of predicting costs, revenues, and discount rates over such a long planning horizon. Crop Tree Release is one practice that has been shown to improve the growth and value of the selected trees and shorten the time to maturity, resulting in an increase in net present value of up to three times that of an untreated stand.

Other income streams that may be enhanced for landowners due to practices implemented through the Hardwood Habitat Incentive Program include carbon sequestration contracts and hunting leases.

Increased economic activity: The HHIP is intended to develop new contractors and new commercial activity by encouraging landowners to implement habitat and forest restoration management practices. This model has been very successful in Virginia's Reforestation of Timber lands (RT) program that assists landowners in planting pine seedlings. A host of private contractors have developed over time to perform work for landowners, demand that would not have existed without the incentive program. Hardwood management practices may be accomplished by loggers and existing forestry contractors as well as tree care companies and landscapers willing to invest in the training and proper equipment.

Natural resource benefits to the Commonwealth: The restoration and management of healthy hardwood forests will result in improved water quality, restoration of critical habitat, aesthetics, and forestland retention.

L. Out of the amounts in this item, ~~\$154,000 the first year~~ and \$521,842 the second year from the general fund is provided for a Hardwood Forest Habitat initiative. Not later than October 15, 2021, the State Forester shall provide to the Chairs of the House Appropriations and Senate Finance and Appropriations Committee a report on the proposed landowner incentive program for hardwood forest management identifying (i) potential hardwood forest operators eligible for participation in the program; (ii) effective hardwood forest management practices and potential landowner incentives; (iii) the amount of revenue collected annually from existing hardwood forest operations subject to the Forest Product Tax pursuant to Chapter 16 of Title 58; and (iv) the estimated annual costs and long term benefits of the Hardwood Forest Habitat program.