

SECOND ANNUAL INTERIM PERFORMANCE REPORT FOR MARYLAND’S LANDOWNER INCENTIVE PROGRAM TIER 2 GRANT (I-2-HM-1)

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Wildlife and Heritage Service*

May 2010

GRANT TITLE: Maryland Landowner Incentive Program, Tier 2: Habitat Restoration and Enhancement for Species and Habitats at Risk

GRANT PERIOD: March 1, 2006 – June 30, 2011.

SUMMARY OF WORK CONDUCTED UP TO MAY 2010

In the past year from June 2009 until May 2010, LIP Biologists have continued to provide on-site technical assistance to new landowners, review applications, and design and implement new restoration projects. During the period from June 2007, the date of our first Performance Report, until May 2010, the Maryland LIP program has provided technical assistance to 178 landowners, reviewed 126 applications, and approved and funded 66 applications with signed agreements under this federal grant.

In addition, program biologists continue to provide project oversight, on-site technical assistance, and administrative support for projects entering into year 2, 3, or 4 of multi-year restoration projects. As the number of multi-year LIP projects grow, the rate at which LIP biologists are able to review, develop, and implement new projects has slightly declined, because of a lack in staff capacity. The program has also experience an increase in grant applications over the last 2 years as the program grows and we develop new partnerships. The table below summarizes this work since the beginning of the grant period.

Table 1: Technical Assistance and Application Review by the Maryland Landowner Incentive Program

	March 2006 – June 2007	June 2007 – May 2008	June 2008 – May 2009	June 2009 – May 2010	TOTAL
On-site Technical Assistance (new landowners)	60 landowners	51 landowners	40 landowners	27 landowners	178 landowners
Applications reviewed	39	27	22	38	126
Applications approved	29	17 (18 originally, 1 cancelled)	10	10	66
Signed agreements	22	14	10	20	66
Projects on hold/ in development	12	5	10	12 (Will be billed to I-3-D-1)	NA
Projects in review	8	2	4	2 (If approved, will be billed to I-3-D-1)	NA

Landowners with 66 approved LIP projects together own 31,691.24 acres of land. Approximately 4,182.5 of these acres are being or will be restored through LIP funding. Maryland DNR Wildlife and Heritage Service has records post-1970 of 233 species at risk on these properties, 186 of them are targeted to benefit through LIP projects. Applications typically take between 6-12 months to be reviewed, approved, and developed with

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landowner agreements secured and on file. Therefore projects that are approved in one fiscal year, may not have signed agreements (with funds encumbered) until the following fiscal year. Projects that are on hold or in development represent applications that have been approved, but do not yet have signed agreements on file. The 12 new projects that are currently in development or on hold will be billed to Maryland’s second Tier 2 grant, I-3-D-1, as projects are developed in the next fiscal year.

Table 2 summarizes each project: the habitat type targeted, the practices used, the number of species to benefit, and the cost. The 10 projects in green are projects that have been contracted (with signed agreements) and implemented between June 2009 and May 2010. Many of these new projects are part of a region-wide, multi-agency eradication effort for Wavy Leaf Basket grass, a newly identified aggressive invasive species. The landowners that signed up for the LIP have property adjacent to state lands. Therefore, control of WLBG on private lands is crucial to the success of the project. These state lands are home to 16 species at risk in Maryland. The control of Wavy Leaf Basket Grass on state lands is being funded with a National Fish and Wildlife Grant, while treatments on private lands are being funded with LIP dollars. The LIP has a grant agreement with the Maryland Department of Agriculture for control treatments on private lands. Projects highlighted in yellow are currently in the second, third, or fourth year of implementation (23 projects). Projects that are fully completed are shaded in pink. Dollar amounts in red indicate changes from previous annual reports, due to budget changes during the course of the projects.

Some projects which list no target species are targeting the rare habitat types. Also note that the totals for species documented and targeted do not add up because some species are found and/or targeted on more than one property. A full list of all species to benefit from these projects can be found in Appendix 1. To date the MD LIP has been able to fully encumber all of the funds (\$725,000 total) in this grant and will be working with landowners and partners in the coming years to fully expend all the encumbered funds. We have documented \$283,516.23 in cash and in-kind matching funds to date for these projects, which exceeds the 25% match as required by federal guidelines. All new projects as of March 2010 are currently being billed to our second Tier 2 grant, I-3-D-1.

Table 2: Maryland LIP projects as of May 2010

Project Name	Habitat type	Total # acres	# acres to be restored	# species at risk documented on property	# species at risk to benefit	Practice(s)	LIP Encumbrances (does not include match)
American Chestnut Land Trust	Coastal Plain Mature Forest	786	786	10	4	Invasive species control	\$33,413.00
Behnke's Nursery	Patuxent Microdesert	125	25	3	1	Invasive species control; restoration of native plant community	\$17,100.00
Black WLBG	Piedmont Mature Forest	6.2	3	0	16	Eradication efforts for Wavy Leaf Basketgrass	*** Part of WLBG MDA Grant
Blunt WLBG	Piedmont Mature Forest	95.3	8	0	16	Eradication efforts for Wavy Leaf Basketgrass	*** Part of WLBG MDA Grant
Boskin WLBG	Piedmont Mature Forest	1	1	0	16	Eradication efforts for Wavy Leaf Basketgrass	*** Part of WLBG MDA Grant
Broad Creek Memorial Scout Reservation	Mountain Mature Forest	1,686	60	7	6	Invasive species control (hemlock woolly adelgid [HWA])	\$11,485.00
Carney	Fen/Seepage Wetland	45.5	3.2	5	1	Fencing, prescribed grazing in bog turtle wetlands	\$10,179.00
Central Maryland Audubon	Mountain Mature Forest	130	4	1	0	Reforestation (contiguous forest)	\$3,000.00

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Cherry	Groundwater Interfacing Wetland (Delmarva Bay)	130	2	3	3	Removal of encroaching red maple and sweet gum saplings from the edges of the wetland	\$3,000.00
Clagett (Patuxent R.)	Tidal Emergent Marsh	138	1	0	1	Invasive species control (Phragmites)	\$81.25
Cleary (Patuxent R.)	Tidal Emergent Marsh	50	1	0	1	Invasive species control (Phragmites)	\$81.25
Colburn Terrapin Project	Beach	5.9	.5	1	1	Diamondback Terrapin Nesting habitat creation	\$3,750.00
Cove Point Natural Heritage Trust	Coastal Plain Mature Forest	50	50	0	0	Invasive species control (plant and HWA)	\$7,823.00
Culotta WLBG	Piedmont Mature Forest	3	3	0	16	Eradication efforts for Wavy Leaf Basketgrass	*** Part of WLBG MDA Grant
Cypress Creek Bog	Fen/Seepage Wetland	10	1	12	18	Invasive species control (Phragmites)	\$6,218.00
Denner	Fen/Seepage Wetland	5	0.5	1	1	Invasive species control	\$1,600.00
Dewling (Drum Pt.)	Beach	1	<1	0	1	Invasive species control	\$112.50
Drum Point Project, Inc.	Beach	17	1	1	1	Invasive species control	\$1,466.79
Felsen (Drum Pt.)	Beach	1	<1	0	1	Invasive species control	\$225.00
Frizzell WLBG	Piedmont Mature Forst	14	12	0	16	Eradication efforts for Wavy Leaf Basketgrass	*** Part of WLBG MDA Grant
George, Ruann	Piedmont Stream System	125	3	0	6	Fencing, livestock exclusion, Tree Planting (buffers)	\$18,580.00
Gerlach WLBG	Piedmont Mature Forst	6.9	6	0	16	Eradication efforts for Wavy Leaf Basketgrass	*** Part of WLBG MDA Grant
Gibson (Drum Pt.)	Beach	1	<1	0	1	Invasive species control	\$112.50
Green	Piedmont Stream	175	102	0	0	Tree planting (buffers), invasive species control, Fencing, Livestock exclusion	\$56,316.00
Gribble (Drum Pt.)	Beach	2	<1	0	1	Invasive species control	\$112.50
Halberstam, Robert	Fen/Seepage Wetland	50	6	1	2	Prescribed Grazing	\$4,500.00
Hohman WLBG	Piedmont Mature Forst	43	12	0	16	Eradication efforts for Wavy Leaf Basketgrass	*** Part of WLBG MDA Grant
Izaak Walton League (Rockville Chapter)	Piedmont Mature Forest	51	51	0	16	Invasive Species Removal	\$12,263.00
Jean Ellen Shehan Dupont Audubon Center	Grassland; non-tidal emergent wetland	948	305.5	22	22	Grassland establishment, grass and forest buffer establishment, restoration of wetland hydrology, vegetation management	\$98,145.00
Johnson WLBG	Piedmont Mature Forst	5	4	0	16	Eradication efforts for Wavy Leaf Basketgrass	*** Part of WLBG MDA Grant
Kochis WLBG	Piedmont Mature Forst	2.3	2	0	16	Eradication efforts for Wavy Leaf Basketgrass	*** Part of WLBG MDA Grant
Koste	Coastal Plain Mature Forest	164	25.5	1	0	Invasive species control (HWA), reforestation (contiguous forest)	\$9,981.70
Lee, C. (Drum Pt.)	Beach	1	<1	0	1	Invasive species control	\$225.00
Lee, V. (Patuxent R.)	Tidal Emergent Marsh	120	1	1	1	Invasive species control (Phragmites)	\$81.25

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Lower Marlboro Town Citizens Assoc.	Tidal Emergent Marsh (Patuxent R.)	1	1	1	1	Invasive species control (Phragmites)	\$81.25
Maher (Patuxent R.)	Tidal Emergent Marsh	4.28	1	0	1	Invasive species control (Phragmites)	\$81.25
Malkus	Coastal Plain Mature Forest	288	8	1	1	Reforestation	\$4,407.58
McDowell & Boyer	Mountain Mature Forest	71	7.5	1	0	Invasive species control, restoration of native plant community	\$5,762.00
Maryland Ornithological Society	Mountain Mature Forest	162	22	1	1	Invasive species control	\$11,700.00
Menning WLBG	Piedmont Mature Forst	12	5	0	16	Eradication efforts for Wavy Leaf Basketgrass	*** Part of WLBG MDA Grant
NJR, LLC	Piedmont Stream System	112	112	0	8	Invasive species control	\$20,962.5
Oldfield Farms	Coastal Plain Stream	1,378	2	1	1	Invasive species control	\$9670.10
Port Tobacco River Conservancy	Coastal Plain Stream	N/A	50	2	5	Riparian Forest Buffers, wetland enhancement	\$8,640.00
Rock Lodge Trust	Mountain Mature Forest, Grassland	3,157	75	12	2	Invasive species control, establishment of warm-season grassland	\$21,450.00
Rowell (Patuxent R.)	Tidal Emergent Marsh	26.12	1	0	1	Invasive species control (Phragmites)	\$81.25
Schmidt	Grassland	219	18	1	1	Fallow Field Maintenance	\$2,059.83
Seitz	Fen/Seepage Wetland	25	5	2	1	Fencing, livestock grazing in bog turtle wetlands	\$18,335.00
Sines	Piedmont Mature Forest	13.9	13.9	1	1	Tree planting, grassland establishment	\$7,085.00
Spiering	Grassland	178	10	1	1	Fallow Field Maintenance	\$1,144.35
Sylvan View Community Association	Fen/Seepage Wetland	7	7	3	3	Restoration of wetland hydrology, restoration of native plant communities, fencing	\$72,49.95
Teets	Mountain Mature Forest	137	30	0	2	Invasive species control	\$3,744.00
The Nature Conservancy-Comprehensive	many, including Delmarva Bays, Serpentine Barrens, Xeric Sand Ridge, Atlantic White Cedar Swamp, Bald Cypress Swamp, Cave	10,926	617	>86	86	Invasive species control and monitoring, Atlantic White Cedar Swamp restoration (tree planting), reforestation of a field above a cave opening	\$96,988.00
The Nature Conservancy – Jackson Lane	Groundwater Interfacing Wetlands	330	330	11	9	Invasive species control	\$20,063.00
The Nature Conservancy – Licking Creek	Mountain Mature Forest	75	6	17	2	Invasive species control (HWA)	\$9,652.50

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The Nature Conservancy – Prescribed Burn	Groundwater Interfacing Wetland, Xeric Sand Ridge, Serpentine Barren	317	45	29	22	Vegetation management (prescribed burning)	\$55,104.00
Watson, P. (Patuxent R.)	Tidal Emergent Marsh	25	1	0	1	Invasive species control (Phragmites)	\$81.25
Watson, S. (Patuxent R.)	Tidal Emergent Marsh	25	1	0	1	Invasive species control (Phragmites)	\$81.25
Weitzell	Mountain Mature Forest	750	5	3	1	Invasive species control	\$5,655.00
Wilkins WLBG	Piedmont Mature Forst	43	12	0	16	Eradication efforts for Wavy Leaf Basketgrass	*** Part of WLBG MDA Grant
Zeiller (Drum Pt.)	Beach	1	<1	0	1	Invasive species control	\$112.50
Zodhiates	Fen/Seepage Wetland, Ridge and Valley Stream	55	38.5	1	2	Reforestation, restoration of hydrology, invasive species control	\$28,000.00
TOTAL:							\$630,793.35 + \$30K for WLBG treatment as per MDA Grant \$660,793.35**

** This amount is lower than the amount reported in the 2009 Annual report, because one of our projects was completed below budget.

SUMMARY OF OBJECTIVES AND PROGRESS SO FAR

The following summarizes our original objectives, by habitat type, for Maryland I-2-HM-1 funds, and our progress towards these goals. Where progress was made in the period since the previous performance report, this is highlighted in green. Where figures have changed since the previous performance report due to changes in projects underway, these are noted in pink.

Project A. Restoration of Ridge and Valley, Piedmont, and Coastal Plain Stream Systems

Objective: To provide technical and financial assistance to landowners to restore water quality and riparian habitats of stream systems using the following practices:

Practice	GOAL	PROJECTED COST	PROGRESS TO DATE	ACTUAL COST
Reforestation: Forested Buffer	150 acres	\$150,000	80 acres	\$59,480
Grassland Buffers	75 acres	\$30,000	0	0
Invasive Species Control	50 acres	\$25,000	142.5 acres	\$49,062.50
Livestock Exclusion & Fencing	5000 ft	\$15,000	6,600 ft	\$26,000
	TOTAL:	\$220,000	0	\$134,542.50

We continue to work Watershed Groups like the Port Tobacco River Conservancy and the Potomac River Conservancy to expand our outreach to landowners. Since our last performance report we have signed grant agreements with both agencies obligating funds for installation of riparian buffers and invasive species control. We expect that additional funds will be awarded in the future for additional work in these watersheds. In the last performance report letters were sent to 377 landowners with riverfront property within the McIntosh Run Ecologically Significant Area in St. Mary’s county, Maryland. Since that time, we have

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received positive responses from nine of these landowners and conducted site visits to all of them in coordination with our partners from the US FWS Chesapeake Bay Field Office. We provided habitat recommendations to these landowners but due to the quality of the habitat on their lands did not pursue restoration projects.

Project B. Restoration of Barrens and Glades

Objective: To provide technical and financial assistance to landowners to restore shale barrens and glades by controlling invasive and woody plant species and restricting livestock access to these sensitive habitats. To accomplish this objective we will use the following practices:

Practice	GOAL	PROJECTED COST	PROGRESS TO DATE	ACTUAL COST
Invasive Species Control	50 acres	\$25,000	6 acres	\$551.00
Vegetation Management: Early-successional habitat	15 acres	\$6,750	5 acres	\$4,108.90
Livestock Exclusion & Fencing	1000 ft	\$3,000	0	0
	TOTAL:	\$34,750		\$4,659.90

Due to the rarity of barrens habitats, we have included serpentine barrens within this habitat type. Our outreach to 47 landowners resulted in site visits with 3 landowners with shale barren habitat and 3 landowners with serpentine barren habitat. We are currently working with one landowner in to develop a restoration plan.

Project C: Restoration of Cliffs and Sandstone Outcrops

Objective: To provide technical and financial assistance to landowners in the restoration of native forest habitats on cliffs and sandstone outcrops using the following practices:

Practice	GOAL	PROJECTED COST	PROGRESS TO DATE	ACTUAL COST
Invasive Species Control	20 acres	\$10,000	0	0
Reforestation: Contiguous Forest	40 acres	\$40,000	0	0
	TOTAL:	\$50,000		0

Due to the limited extent of this habitat type, it has been difficult to find good candidates for restoration.

Project D. Restoration of Mountain and Piedmont Mature Forest

Objective: To provide technical and financial assistance to landowners to restore forests, reduce fragmentation, and control invasive species in the Ridge and Valley and Allegheny Plateau regions of Maryland. Specific practices and costs are as follows:

Practice	GOAL	PROJECTED COST	PROGRESS TO DATE	ACTUAL COST
Invasive Species Control	30 acres	\$15,000	448 acres	\$68,571.39 + est \$30,00 for WLBG treatments
Reforestation: Contiguous Forest	85 acres	\$85,000	29.5 acres	\$15,375.00

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Invasive Species Control (HWA)	0	0	66 acres	\$21,137.50
Restoration of native vegetation	0	0	7.5	\$2,881.00
	TOTAL:	\$100,000		\$137,964.89 (est)

We continue to treat and monitor groves of hemlock trees for hemlock woolly adelgid on two properties having mountain mature forest. These trees are an important part of the forest, functioning to stabilize stream banks, reduce water temperature, and provide habitat for associated rare species including the ostrich fern, the smoky shrew, and six rare aquatic species. We have also developed a restoration project for the Isaac Walton League to treat invasive species on their property adjacent to State Park Lands thereby improving contiguous forested corridors for wildlife.

Project E. Restoration of Subterranean Habitats

Objective: To provide technical and financial assistance to landowners to restore and protect land adjacent to, and containing, subterranean habitats, using the following practices:

Practice	GOAL	PROJECTED COST	PROGRESS TO DATE	ACTUAL COST
Reforestation of Contiguous Forest	50 acres	\$50,000	5 acres	\$2,000
Grassland Buffers	100 acres	\$40,000	0	0
Livestock Exclusion & Fencing	2500 ft	\$7,500	0	0
	TOTAL:	\$97,500		\$2,000

Since June 2007 we have contacted 12 landowners with caves on their property. We have one project with The Nature Conservancy (TNC-Comprehensive) which will reforest a 5 acre field above a cave in Garrett County. We have had difficulty meeting our objectives for this habitat type due to the rarity of subterranean habitats on private property.

Project F. Restoration of Fens and Seepage Wetlands

Objective: Provide technical and financial assistance to landowners to restore habitat for the federally threatened bog turtle and other fen/seepage wetland species at risk, by applying the following practices:

Practice	GOAL	PROJECTED COST	PROGRESS TO DATE	ACTUAL COST
Vegetation Management: Early successional habitat	30 acres	\$45,000	6.6 acres (prescribed grazing)	\$8,664.00
Grassland Buffers	50 acres	\$20,000	0	0
Invasive Species Control	30 acres	\$15,000	98.5 acres	\$18,808.03
Livestock Exclusion & Fencing	3750 ft	\$11,250	4364 ft	\$31,125.20
Restoration of wetland hydrology	0	0	12 acres	\$39,499.85
Restoration of native vegetation	0	0	7 acres	\$14,000.50
	TOTAL:	\$91,250		\$112,097.58

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Due to the success of our first two prescribed grazing projects, we are providing funding for continued maintenance grazing on both of our original sites for an additional 4 years, as well as considering other potential properties where this practice could be used.

Project G. Restoration of Calcareous Woodlands

Objective: To provide technical and financial assistance to landowners to restore calcareous woodlands using the following practices:

Practice	GOAL	PROJECTED COST	PROGRESS TO DATE	ACTUAL COST
Grassland/Forest Buffers	35 acres	\$35,000	8 acres	\$8,000
Invasive Species Control	30 acres	\$15,000	0	0
	TOTAL:	\$50,000		\$8,000

Calcareous woodlands are an extremely rare habitat type in Maryland, ranked S1. There are only four landowners known to have this habitat type on their property – we have contacted all four by letter, and have had only one application. Therefore, it is unlikely we will be able to meet our objective of 65 acres of restoration for this habitat type.

Project H. Restoration of Coastal Plain Mature Forest

Objective: To provide technical and financial assistance to landowners in restoring mature forest habitat for Delmarva fox squirrel and other species at risk, and controlling invasive species in forests of the Coastal Plain of Maryland. LIP projects will include the following practices:

Practice	GOAL	PROJECTED COST	PROGRESS TO DATE	ACTUAL COST
Reforestation of Contiguous Forest	125 acres	\$125,000	16.5 acres	\$8,352.33
Invasive Species Control	15 acres	\$7,500	856 acres	\$37,072.67
Vegetation management: Understory thinning	28 acres	\$14,000	0	0
Invasive Species Control (HWA)	0	0	24 acres	\$14,000.00
	TOTAL:	\$146,500		\$59,425.00

We have still been unable to have the Coastal Plain hemlocks treated for wooly adelgid due to the high workload of Maryland Department of Agriculture crews, but are hopeful that treatment will occur in the upcoming year.

Project I. Restoration of Groundwater-Interfacing Wetlands

Objective: To provide technical and financial assistance to landowners to restore Coastal Plain wetlands, including Delmarva bays, using the following practices:

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Practice	GOAL	PROJECTED COST	PROGRESS TO DATE	ACTUAL COST
Reforestation: Forested Buffers	5 acres	\$5,000	10 acres	\$10,000.00
Invasive Species Control	8 acres	\$4,000	450 acres	\$31,083.03
Vegetation Management	29 acres	\$43,500	83 acres	\$24,204.06
Restoration of wetland hydrology	10 acres	\$10,000	20 acres	\$0 (cost covered by matching grant)
Livestock Exclusion & Fencing	1,400 ft.	\$4,200	0	0
Restoration of native vegetation	0	0	20.5 acres	\$17,100.00
	TOTAL:	\$66,700		\$82,387.09

We continue to work with The Nature Conservancy to monitoring our project to remove invasive plants in and around Delmarva Bays on 120 acres on two preserves on the Eastern Shore of Maryland. We are also working closely with TNC biologist to monitor project areas where LIP funded the removal of encroaching woody plants from 66 acres Delmarva Bay, 64 on The Nature Conservancy property and 2 on the property of another landowner adjacent to a Nature Conservancy Preserve. Our work has exceeded our objectives for invasive control and vegetation management in this habitat type, although we have not had an opportunity to implement fencing. In the last fiscal year we conducted an outreach mailing to 52 landowners with records of Delmarva-bay dwelling rare species on their property. From this outreach effort, we spoke with 13 landowners, visited 6 of them, and approved one application for a project to remove encroaching vegetation in a Delmarva Bay Property.

Project J. Restoration of Bald-Cypress and Atlantic White-Cedar Swamps

Objective: To provide technical and financial assistance to landowners in restoration of bald-cypress and Atlantic white-cedar swamps in floodplains of Coastal Plain streams and rivers using the following practices:

Practice	GOAL	PROJECTED COST	PROGRESS TO DATE	ACTUAL COST
Reforestation of Contiguous Forest	20 acres	\$20,000	35 acres	\$42,000.00
Invasive Species Control	10 acres	\$5,000	5 acres	\$459.17
	TOTAL:	\$25,000		\$42,459.17

In the last fiscal year we approved a project with The Nature Conservancy to help them restore 35 acres of Atlantic White Cedar on two of their Preserves on the Eastern Shore of Maryland where historically Atlantic White Cedar occurred. Work on this project was contracted and began this year. Invasive species controls are currently being undertaken on five acres of established bald cypress swamp in The Nature Conservancy’s Nassawango Preserve.

Project K. Restoration of Xeric Sand Ridges and Patuxent Microdeserts

Objectives: To restore forest communities associated with xeric sand ridges on the eastern shore of Chesapeake Bay, and native plant and arthropod communities associated with microdesert habitats adjacent to the Patuxent River, using the following practices:

Practice	GOAL	PROJECTED COST	PROGRESS TO DATE	ACTUAL COST
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Reforestation of Contiguous Forest	20 acres	\$20,000	0	0
Native plant community restoration	100 acres	\$20,000	25 acres	\$10,000
Invasive Species Control	10 acres	\$5,000	25 acres	\$7,100
Vegetation management – prescribed burn	0	0	0	
	TOTAL:	\$45,000		\$17,100

Due to changes in management at the Behnke’s Project Site on the banks of the Patuxent River we have scaled back our project to remove invasive species and restore native vegetation. We are still hopeful that this project will yield quality habitat for rare hymenopterans and xeric plant species, even given the smaller scope.

Project L. Restoration of Contiguous Grasslands

Objectives: To restore contiguous native grasslands or savannas historically associated with serpentine soils, barrens, or glades, or anthropogenic grasslands (e.g., hayfields, reclaimed surface mines) using the following practices:

Practice	GOAL	PROJECTED COST	PROGRESS TO DATE	ACTUAL COST
Establishment of warm-season grassland	100 acres	\$40,000	80.4 acres	\$35,520.00
Vegetation management – grassland thinning	0	0	139.5 acres	\$9,919.00
Fallow field maintenance	0	0	28	\$3,203.88
Invasive species control	0	0	297	\$37,000.00
	TOTAL:	\$40,000		\$85,642.88

In consultation with Maryland DNR’s upland game bird biologist, we amended into our approved practices for grasslands a practice called “fallow field maintenance”. This year we made our first incentive payment to participating farmers to leave at least 10 acres of cropland fallow for 3 years, without seeding or modifying the land. The natural fallow field flora that results supports the Northern Bobwhite Quail, a species of Greatest Conservation Need, as well as other grassland birds. We are well into our first year of this project and will continue monitoring the response of quail and other birds to this practice to gauge its success.

Additional Project:

Control and Eradication of Wavy Leaf Basket Grass

Wavyleaf basketgrass (*Oplismenus hirtellus* spp. *undulatifolius*) or WLBG, is a newly identified, aggressive forest understory invader. This grass is native to southern Europe and southeastern Asia. Maryland’s infestations represent the only known occurrence of this invader in North America. It has spread from a few <10 m diameter patches, first reported in Patapsco Valley State Park (PVSP) in 1996, to densely cover more than 200 acres of state park and adjacent private lands. It is widely distributed over roughly another 2,000 acres. The patchier populations include infestations discovered in PVSP, Howard County’s Middle Patuxent Environmental Area, Prince George’s County’s Little Paint Branch Park, and Baltimore City’s Liberty Reservoir. These public lands are home to 16 known state species at risk. The MD LIP has established an aggressive outreach and education plan to reach out to private landowners with property adjacent to these public lands to identify and treat WLBG. The LIP has been coordinating treatment work and has a grant agreement with the Maryland Department of Agriculture for control on private lands.

Creating Beach Nesting Habitat for Diamondback Terrapins

We have also worked in coordination with the Army Corp of Engineers (ACE), the Wetland Restoration Service, and the Terrapin Institute to develop and implement projects to create Nesting Beach Habitat for Diamondback Terrapins, a state watch-list species. Populations of these aquatic turtles have been declining in the state and can be attributed to several reasons including decline in suitable nesting habitat.

Restoring Tidal Emergent Marsh for the Federally Endangered Sensitive Joint- Vetch

In addition to the projects listed above, and specified in our grant agreement, we have worked on 8 properties to restore tidal emergent marsh habitat for the federally threatened Sensitive Joint-Vetch (*Aeschynomene virginica*). Sensitive Joint-Vetch occurs in less than 25 locations in the country, one of which is along the Patuxent River in Maryland. The plant is a poor competitor and relies on the presence of bare mud in the intertidal zone in order to germinate and grow. However, the invasive perennial plant species *Phragmites (Phragmites australis)* has taken over much of this intertidal region along the river, preventing the establishment of the annual Sensitive Joint-Vetch. This stretch of the river includes private, state and county-owned land. LIP partnered with MD DNR Wildlife and Heritage Service Southern Region Staff and the Maryland Department of Agriculture weed control team to apply a chemical treatment by boat to shoreline *Phragmites* stands in the region. LIP contacted local private landowners and paid for the treatment on the land of 8 willing landowners, while the state and county portions were paid for by the respective agencies. The match for LIP funds was provided by DNR in the form of equipment and staff time, resulting in no cost for the participating landowners.

CONCLUSION

The Maryland Landowner Incentive Program over the last 3 years has continued to make progress in restoring habitat for species at risk in the state. We have reviewed 88 applications and approved 56 projects for funding under this Tier 2 Grant. We continue to review, develop and implement new projects while also providing technical assistance and oversight to multi-year projects begun in previous years. Overall, we have approved projects to restore land in 11 of our 12 target habitat types, the exception being cliffs and sandstone outcrops, which are very limited in extent. While we are still working towards our goals for certain practices like grassland buffers and forested buffers, we have already surpassed our goals for invasive species control in five of our target habitats, and have exceeded goals for other practice types in five target habitats. We have also amended additional practices into our grant narrative as we learn more about the specific needs in each habitat.

QUANTIFIED OUTCOMES

Our quantified outcomes over the last 3 grant periods from June 2006-May 2009:

	TOTAL	TOTAL COST	TOTAL COST PER ACRE
Total number of acres of wetlands under agreement to be improved, managed or restored	774.6	322,208.80	\$415.97/Acre
Total number of non-wetland acres under agreement to be improved, managed or restored	2061.9	\$349,507.35	\$169.51/Acre
TOTAL ACRES	2836.50	\$671,716.15	\$236.81/acre Average

SECTION 7 REVIEW SUMMARY

We have completed Section 7 reviews for 46 of our 56 approved landowner projects. Of these, 25 properties have no known occurrences of federally listed species. The remaining 21 are as follows:

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Project(s)	Species	Determination
ACLT	Bald eagle	No effect
Carney Seitz	Bog turtle	Not likely to adversely affect– see note below***
Denner	Bog turtle	Not likely to adversely affect - project will follow closely all the recommendations of the Biological Opinion, which states that if this is done the risk of take resulting from invasive species removal is “discountable” and is extremely unlikely
Dewling Felsen Gibson Gribble Zeiller Lee Drum Point Project, Inc.	Northeastern Beach Tiger Beetle	Not likely to adversely affect – chemical application is occurring when adult beetles are absent
Malkus	Delmarva fox squirrel	No effect - planting activities will not involve any direct disturbance to the mature forest stands where the squirrels live, and will impact only land that is currently planted with grass
Pickering Creek Audubon	Delmarva fox squirrel	Not likely to adversely affect - although imidacloprid may be moderately toxic to mammals through direct ingestion, the limited application of the insecticide into soil directly below hemlock trees or into the trunk will eliminate the possibility of ingestion by Delmarva fox squirrels.
Clagett Cleary Lee, V. Lower Marlboro TCA Maher Rowell Watson, P. Watson, S.	Sensitive Joint-Vetch	Not likely to adversely affect - herbicide is being applied after the completion of the sensitive joint-vetch’s annual life cycle

*** For the Carney and Seitz prescribed grazing projects, we received concurrence from the Chesapeake Bay Field Office of the USFWS that the fencing and grazing practices are not likely to adversely affect the bog turtle, and therefore these projects were approved and deemed exempt from the terms of the bog turtle Biological Opinion issued in March of 2006.

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APPENDIX 1: Species that stand to benefit from MD LIP projects

Common Name	Scientific Name	Type	Global rank	State rank	Project(s) where benefits
Alder Flycatcher	<i>Empidonax alnorum</i>	Vertebrate	G5	S2	Rock Lodge
Aster-like Boltonia	<i>Boltonia asteroides</i>	Plant	G5	S1	TNC Jackson Ln., TNC Prescribed Burn
Atlantic White Cedar	<i>Chamaecyparis thyoides</i>	Plant	G4	S3	Cypress Creek Bog
Auricled Gerardia	<i>Agalinis auriculata</i>	Plant	G3	S1	Green
Beaked Spikerush	<i>Eleocharis rostellata</i>	Plant	G5	S2?	Cypress Creek Bog
Blackburnian Warbler	<i>Dendroica fusca</i>	Vertebrate	G5	S1S2B	Rock Lodge
Blunt-lobe Grape-fern	<i>Botrychium oneidense</i>	Plant	G4Q	S1	NJR
Bog Turtle	<i>Clemmys muhlenbergii</i>	Vertebrate	G3	S2	Carney, Denner, Seitz, Zodhaites
Bristly Sarsaparilla	<i>Aralia hispida</i>	Plant	G5	S1	Rock Lodge
Buxbaum's Sedge	<i>Carex buxbaumii</i>	Plant	G5	S2	IWLA
Coast Sedge	<i>Carex exilis</i>	Plant	G5	S1	Cypress Creek Bog
Curtiss' three-awn	<i>Aristida curtissii</i>	Plant	G5	SU	TNC Prescribed Burn
Dark green sedge	<i>Carex venusta</i>	Plant	G4	S2	TNC Comprehensive
Davis' Sedge	<i>Carex davisii</i>	Plant	G4	S1	George
Davis' Sedge	<i>Carex davisii</i>	Plant	G4	S1	Green
Few-flowered Tick-trefoil	<i>Desmodium pauciflorum</i>	Plant	G5	S1	ACLT
Giant Cane	<i>Arundinaria gigantea</i>	Plant	G5	S2	Sylvan View
Glade fern	<i>Diplazium pycnocarpon</i>	Plant	G5	S2	Weitzell
Grasshopper sparrow	<i>Ammodramus savannarum</i>	Vertebrate	G5	GCN	JEDS Audubon
Harebell	<i>Campanula rotundifolia</i>	Plant	G5	S2	TNC Comprehensive
Henslow's Sparrow	<i>Ammodramus henslowii</i>	Vertebrate	G	S1S2	RockLodge, Teets
Hop-like Sedge	<i>Carex lupuliformis</i>	Plant	G4	S1?	TNC Jackson Ln., Cherry
Inflated sedge	<i>Carex vesicaria</i>	Plant	G5	S1	TNC Comprehensive
Knotted spikerush	<i>Eleocharis equisetoides</i>	Plant	G4	S1	TNC Comprehensive
Lake-bank sedge	<i>Carex lacustris</i>	Plant	G5	S2	TNC Comprehensive
Leatherleaf	<i>Chamaedaphne calyculata</i>	Plant	G5	S1	Sylvan View
Leatherwood	<i>Dirca palustris</i>	Plant	G4	S2	TNC Comprehensive
Little prickly sedge	<i>Carex echinata</i>	Plant	G5	S1	TNC Comprehensive
Mead's Sedge	<i>Carex meadii</i>	Plant	G4G5	S1	IWLA
Northeastern beach tiger beetle	<i>Cicindela dorsalis dorsalis</i>	Invertebrate	G4T2	S1	Drum Pt.
Northern bobwhite	<i>Colinus virginianus</i>	Vertebrate	G5	GCN	JEDS Audubon, Schmidt, Spiering
Northern harrier	<i>Circus cyaneus</i>	Vertebrate	G5	S2B	JEDS Audubon
Porter's reedgrass	<i>Calamagrostis porteri</i>	Plant	G4	S1	TNC Comprehensive
Reflexed Cyperus	<i>Cyperus refractus</i>	Plant	G5	S2?	NJR
Robbins' spikerush	<i>Eleocharis robbinsii</i>	Plant	G4G5	S1	TNC Prescribed Burn, TNC Comprehensive
Rough-leaved aster	<i>Aster radula</i>	Plant	G5	S1	TNC Comprehensive
Running juneberry	<i>Amelanchier stolonifera</i>	Plant	G5	S2	TNC Comprehensive
Sedge Wren	<i>Cistothorus platensis</i>	Vertebrate	G5	S1	Rock Lodge
Sensitive Joint-vetch	<i>Aeschenomene virginia</i>	Plant	G2	S1	Patuxent River
Serpentine aster	<i>Aster depauperatus</i>	Plant	G2	S1	TNC Prescribed Burn, TNC Comprehensive
Side-oats grama	<i>Bouteloua curtipendula</i>	Plant	G5	S2	TNC Comprehensive
Small-fruited Beggar-ticks	<i>Bidens mitis</i>	Plant	G4?	S1	Cypress Creek Bog
Spotted turtle	<i>Clemmys guttata</i>	Vertebrate	G5	GCN	JEDS Audubon
Stiff tick-trefoil	<i>Desmodium strictum</i>	Plant	G4	S1	TNC Prescribed Burn, TNC Comprehensive

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Common Name	Scientific Name	Type	Global rank	State rank	Project(s) where benefits
Tall Larkspur	<i>Delphinium exaltatum</i>	Plant	G3	S1	TNC Comprehensive
Tall Swamp Panicgrass	<i>Dichanthelium scabriusculum</i>	Plant	G4	S1	TNC Comprehensive
Tickseed Sunflower	<i>Bidens coronata</i>	Plant	G5	S2S3	Cypress Creek Bog
Tiger beetle	<i>Cicindela scutellaris rugifrons</i>	insect	G5	S3	Behnke's
Velvety sedge	<i>Carex vestita</i>	Plant	G5	S2	TNC Comprehensive
Big-topped lovegrass	<i>Eragrostis hirsuta</i>	Plant	G5	S1S2	TNC Prescribed Burn, TNC Comprehensive
Alleghany plum	<i>Prunus alleghaniensis</i>	Plant	G4	S2	TNC Comprehensive
Allegheny Cave Amphipod	<i>Stygobromus allegheniensis</i>	Vertebrate	G5	S2S3	George
American Gromwell	<i>Lithospermum latifolium</i>	Plant	G4	S1	TNC Comprehensive
Bashful Bulrush	<i>Scirpus verecundus</i>	Plant	G4G5	S2S3	IWLA
Bashful Bulrush	<i>Trichophorum planifolium</i>	Plant	G4G5	S2S3	WLBG Projects
Black-fruited mtn. rice	<i>Oryzopsis racemosa</i>	Plant	G5	S2	TNC Comprehensive
Bog clubmoss	<i>Lycopodiella inundata</i>	Plant	G5	S2	TNC Comprehensive, Rock Lodge
Bog fern	<i>Thelypteris simulata</i>	Plant	G4G5	S2	TNC Comprehensive, Rock Lodge
Broad-glumed Brome	<i>Bromus latiglumis</i>	Plant	G5	S1	WLBG Projects
Brook Trout	<i>Salvelinus fontinalis</i>	Vertebrate	G5	S3S4	BSA, Zodhaites
Brown-fruited rush	<i>Juncus pelocarpus</i>	Plant	G5	S1	Sylvan View, TNC Prescribed Burn Cypress Creek Bog
Bur-reed Sedge	<i>Carex sparganioides</i>	Plant	G5	S1S2	WLBG Projects
Butternut	<i>Juglans cinerea</i>	Plant	G3G4	S2S3	IWLA
Canada burnet	<i>Sanguisorba canadensis</i>	Plant	G5	S2	TNC Comprehensive
Carpenter Frog	<i>Rana virgatipes</i>	Vertebrate	G5	S2	TNC Jackson Ln., TNC Comprehensive
Cherrydrop snail	<i>Hendersonia occulta</i>	Vertebrate	G5	S2	TNC Comprehensive
Climbing milkweed	<i>Matelea obliqua</i>	Plant	G4?	S1	TNC Comprehensive
Cluster Fescue	<i>Festuca paradoxa</i>	Plant	G5	S1	Port Tobacco
Common Moorhen	<i>Gallinula chloropus</i>	Vertebrate	G5	S2B	NJR
Common skullcap	<i>Scutellaria galericulata</i>	Plant	G5	S1	TNC Comprehensive
Compton Tortoiseshell	<i>Nymphalis vaualbum</i>	Plant	G5	S1	Rock Lodge
Coppery St. John's-wort	<i>Hypericum denticulatum</i>	Plant	G5	S2	TNC Jackson Ln., TNC Rx Burn
Crested Iris	<i>Iris cristata</i>	Plant	G5	S1	TNC Comprehensive, IWLA
Cross-leaved milkwort	<i>Polygala cruciata</i>	Plant	G5	S2	TNC Prescribed Burn, TNC Comprehensive
Delmarva Fox Squirrel	<i>Sciurus niger cinereus</i>	Vertebrate	G5T3	S1	Malkus,
Dickcissel	<i>Spiza americana</i>	Vertebrate	G5	S2B	JEDS Audubon, Green
Drowned hornedrush	<i>Rhynchospora inundata</i>	Plant	G3G4	S1	TNC Prescribed Burn, TNC Comprehensive
Dwarf Iris	<i>Iris verna</i>	Plant	G5	S1	TNC Comprehensive, Port Tobacco
Eastern meadowlark	<i>Sturnella magna</i>	Vertebrate	G5	GCN	JEDS Audubon
Engelmann's arrowhead	<i>Sagittaria engelmanniana</i>	Plant	G5	S2	Cherry, TNC Comprehensive
Erect Water-hyssop	<i>Mecardonia acuminata</i>	Plant	G5	S1	TNC Comprehensive
Fameflower	<i>Talinum teretifolium</i>	Plant	G4	S1	TNC Prescribed Burn, TNC Comprehensive
Featherbells	<i>Stenanthium gramineum</i>	Plant	G4G5	S1	TNC Prescribed Burn, TNC Comprehensive
Featherfoil	<i>Hottonia inflata</i>	Plant	G4	S1	TNC Jackson Ln., TNC Comprehensive
Fibrous bladderwort	<i>Utricularia fibrosa</i>	Plant	G4G5	S1	TNC Comprehensive, Cypress Creek Bog
Field sparrow	<i>Spizella pusilla</i>	Vertebrate	G5	GCN	JEDS Audubon
Flattened Pipewort	<i>Eriocaulon compressum</i>	Plant	G5	S2	TNC Comprehensive
Fringed Yelloweyed-grass	<i>Xyris fimbriata</i>	Plant	G5	S1	TNC Comprehensive

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Common Name	Scientific Name	Type	Global rank	State rank	Project(s) where benefits
Fringe-tip Closed Gentian	<i>Gentiana andrewsii</i>	Plant	G5?	S2	IWLA
Frosted Elfin	<i>Incisalia irus</i>	insect	G3	S1	TNC Comprehensive
Giant swallowtail	<i>Papilio cresphontes</i>	insect	G5	S2	TNC Comprehensive, IWLA
Golden-crowned Kinglet	<i>Regulus satrapa</i>	Vertebrate	G5	S2B, S4N	Rock Lodge
Goldenseal	<i>Hydrastis canadensis</i>	Plant	G4	S2	WLBG Projects
Goose-foot Cornsalad	<i>Valerianella chenopodiifolia</i>	Plant	G5	S1	TNC Comprehensive
Green Floater	<i>Lasmigona subviridis</i>	Invertebrate	G3	S1	TNC Licking Cr.
Grove meadow-grass	<i>Poa alsodes</i>	Plant	G4G5	S2	TNC Comprehensive
Hairy Ludwigia	<i>Ludwigia hirtella</i>	Plant	G5	S1	TNC Comprehensive
Hairy snoutbean	<i>Rhynchosia tomentosa</i>	Plant	G5	S2	TNC Prescribed Burn, TNC Comprehensive
Halberd-leaved greenbrier	<i>Smilax pseudochina</i>	Plant	G4G5	S2	TNC Comprehensive
Harperella	<i>Ptilimnium nodosum</i>	Plant	G2	S1	TNC Comprehensive
Harper's Fimbristylis	<i>Fimbristylis perpusilla</i>	Plant	G2	S2	TNC Jackson Ln.
Hooded Merganser	<i>Lophodytes cucullatus</i>	Vertebrate	G5	S1S2	Rock Lodge
Hooded Skullcap	<i>Scutellaria galericulata</i>	Plant	G5	S1	WLBG Projects
Kate's mountain clover	<i>Trifolium virginicum</i>	Plant	G3	S2S3	TNC Comprehensive
Kentucky Coffeetree	<i>Gymnocladus dioicus</i>	Plant	G5	S1	WLBG Projects
Large Cranberry	<i>Vaccinium macrocarpon</i>	Plant	G4	S3	Cypress Creek Bog
Large Purple Fringed Orchid	<i>Platanthera grandiflora</i>	Plant	G5	S2	NJR
Large-seeded Forget-me-not	<i>Myosotis macrosperma</i>	Plant	G5	S2S3	ACLT, Port Tobacco
Laughing gull	<i>Larus atricilla</i>	Vertebrate	G5	S1B	JEDS Audubon
Least Bittern	<i>Ixobrychus exilis</i>	Vertebrate	G5	S2S3B	NJR
Least tern	<i>Sterna antillarum</i>	Vertebrate	G4	S2B	JEDS Audubon
Leonard's skullcap	<i>Scutellaria leonardii</i>	Plant	G4T4	S2	TNC Prescribed Burn, TNC Comprehensive
Loggerhead Shrike	<i>Lanius ludovicianus</i>	Vertebrate	G4	S1B,S1N	NJR
Logperch	<i>Percina caprodes</i>	Vertebrate	G5	S1S2	BSA
Long-beaked Arrowhead	<i>Sagittaria longirostra</i>	Plant	GNRQ	SU	ACLT
Long-beaked baldrush	<i>Rhynchospora scirpoides</i>	Plant	G4	S2	TNC Prescribed Burn, TNC Comprehensive
Lowland loosestrife	<i>Lysimachia hybrida</i>	Plant	G5	S2	TNC Comprehensive
Marsh speedwell	<i>Veronica scutellata</i>	Plant	G5	S1	TNC Comprehensive
Missouri Rockcress	<i>Arabis missouriensis</i>	Plant	G5?Q	S1	WLBG Projects
Mountain pimpernel	<i>Taenidia montana</i>	Plant	G3	S2	TNC Comprehensive
Narrow melicgrass	<i>Melica mutica</i>	Plant	G5	S1	TNC Comprehensive
Northern dropseed	<i>Sporobolus heterolepis</i>	Plant	G5	S1	TNC Prescribed Burn
Northern Pitcher-Plant	<i>Sarracenia purpurea</i>	Plant	G5	S2	TNC Comprehensive, Rock Lodge
Northern prickly-ash	<i>Zanthoxylum americanum</i>	Plant	G5	S1	TNC Comprehensive, IWLA
Ostrich Fern	<i>Matteuccia struthiopteris</i>	Plant	G5	S2	BSA
Ostrich Fern	<i>Matteuccia struthiopteris</i>	Plant	G5	S2	WLBG Projects
Pale green orchid	<i>Platanthera flava</i>	Plant	G4	S2	TNC Comprehensive
Pale mannagrass	<i>Torreyochloa pallida</i>	Plant	G5	S1	TNC Comprehensive
Parker's pipewort	<i>Eriocaulon parkeri</i>	Plant	G3	S2	TNC Prescribed Burn, TNC Comprehensive
Pied-billed grebe	<i>Podilymbus podiceps</i>	Vertebrate	G5	S2B	JEDS Audubon, TNC Prescribed Burn, NJR
Pink Bog-button	<i>Sclerolepis uniflora</i>	Plant	G4	S2	TNC Comprehensive
Pizzini's Amphipod	<i>Stygobromus pizzinii</i>	Invertebrate	G3G4	S1	Green
Potato Dandelion	<i>Krigia dandelion</i>	Plant	G5	S1	IWLA

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Common Name	Scientific Name	Type	Global rank	State rank	Project(s) where benefits
Potato Dwarf-dandelion	<i>Krigia dandelion</i>	Plant	G5	S1	WLBG Projects
Purple bladderwort	<i>Utricularia purpurea</i>	Plant	G5	S1	TNC Prescribed Burn
Red-root	<i>Lachnanthes carolineana</i>	Plant	G4	S1	TNC Prescribed Burn, TNC Comprehensive
Reticulated nutrush	<i>Scleria reticularis</i>	Plant	G4	S2	TNC Prescribed Burn, Cherry, TNC Comprehensive
Reversed bladderwort	<i>Utricularia resupinata</i>	Plant	G4	S1	TNC Prescribed Burn, TNC Comprehensive
Rock sandwort	<i>Minuartia michauxii</i>	Plant	G5	S2	TNC Comprehensive
Rose Pogonia	<i>Pogonia ophioglossoides</i>	Plant	G5	S3	Cypress Creek Bog
Roundleaf Fameflower	<i>Talinum teretifolium</i>	Plant	G4	S1	WLBG Projects
Roundtop Amphipod	<i>Stygobromus</i> sp. 14	Invertebrate	GNR	S1	Green
Royal Tern	<i>Sterna caspia</i>	Vertebrate	G5	S1B	JEDS Audubon
Salt-marsh Bulrush	<i>Scirpus cylindricus</i>	Plant	G5	S2	Durham Pt.
Sandplain flax	<i>Linum intercursum</i>	Plant	G4	S2	TNC Comprehensive
Savannah sparrow	<i>Passerculus sandwichensis</i>	Vertebrate	G5	S3S4B	JEDS Audubon
Seneca snakeroot	<i>Polygala senega</i>	Plant	G4G5	S2	TNC Comprehensive, IWLA
Seneca Snakeroot	<i>Polygala senega</i>	Plant	G4G5	S2	WLBG Projects
Shale-barren Skullcap	<i>Scutellaria parvula</i> var. <i>missouriensis</i>	Plant	G4T4	S2	WLBG Projects
Shield Darter	<i>Percina peltata</i>	Vertebrate	G5	S3	BSA
Shining nutrush	<i>Scleria nitida</i>	Plant	GNR	S1	TNC Comprehensive
Showy Goldenrod	<i>Solidago speciosa</i>	Plant	G5	S2	ACLT
Shumard's Oak	<i>Quercus shumardii</i>	Plant	G5	S2	Green, IWLA
Silver Plumegrass	<i>Saccharum alopecuroidum</i>	Plant	G5	S1?	WLBG Projects
Slender nutrush	<i>Scleria minor</i>	Plant	G4	S1	TNC Comprehensive
Small cranberry	<i>Vaccinium oxycoccos</i>	Plant	G5	S2	TNC Comprehensive
Small-flowered Baby-blue-eyes	<i>Nemophila aphylla</i>	Plant	G5	S1	Port Tobacco
Small-fruited Agrimony	<i>Agrimonia microcarpa</i>	Plant	G5	SU	WLBG Projects
Small's yelloweyed-grass	<i>Xyris smalliana</i>	Plant	G5	S1	TNC Prescribed Burn, TNC Comprehensive
Smoky Shrew	<i>Sorex fumeus</i>	Vertebrate	G5	S2S3	BSA
Smooth Fuirena	<i>Fuirena pumila</i>	Plant	G4	S2S3	TNC Comprehensive
Smooth Phlox	<i>Phlox glaberrima</i>	Plant	G5	S1	IWLA
Snow Trillium	<i>Trillium rivale</i>	Plant	G4G5	S1	RockLodge, TNC Comprehensive, Teets
Sora	<i>Porzana carolina</i>	Vertebrate	G5	S1B	NJR
Squawfoot	<i>Strophitus undulatus</i>	Invertebrate	G5	S2	TNC Licking Cr.
Standley's Goosefoot	<i>Chenopodium standleyanum</i>	Plant	G5	S1	WLBG Projects
Star-flowered False Solomon's-seal	<i>Maianthemum stellatum</i>	Plant	G5	S1	Green
Swamp-oats	<i>Sphenopholis pensylvanica</i>	Plant	G4	S1S2	IWLA
Tall Nutrush	<i>Scleria triglomerata</i>	Plant	G5	S1S2	TNC Comprehensive
Three-flowered melicgrass	<i>Melica nitens</i>	Plant	G5	S2	TNC Comprehensive
Tiny-headed Beakrush	<i>Rhynchospora microcephala</i>	Plant	G5	S2S3	TNC Comprehensive
Torrey's Beakrush	<i>Rhynchospora torreyana</i>	Plant	G4	S2	TNC Comprehensive
Torrey's mountain-mint	<i>Pycnanthemum torrei</i>	Plant	G2	S1	TNC Prescribed Burn, TNC Comprehensive
Veined Skullcap	<i>Scutellaria nervosa</i>	Plant	G5	S1	TNC Comprehensive, IWLA
Vesper sparrow	<i>Poocetes gramineus</i>	Vertebrate	G5	S3S4B	JEDS Audubon
Virginia Mallow	<i>Sida hermaphrodita</i>	Plant	G3	S1	Green

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Virginia Mountain-mint	<i>Pycnanthemum virginianum</i>	Plant	G5	S2	TNC Comprehensive
Water Clubrush	<i>Scirpus subterminalis</i>	Plant	G4G5	S1	TNC Comprehensive
White Beakrush	<i>Rhynchospora alba</i>	Plant	G5	S3	Cypress Creek Bog
White Fringed Orchid	<i>Platanthera blephariglottis</i>	Plant	G4G5	S2	TNC Comprehensive, Cypress Creek Bog
White Trout Lily	<i>Erythronium albidum</i>	Plant	G5	S2	Green
White-bracted Boneset	<i>Eupatorium leucolepis</i>	Plant	G5	S2S3	TNC Comprehensive
Wide-leaved Ladys' Tresses	<i>Spiranthes lucida</i>	Plant	G5	S1	Rock Lodge
Wild lupine	<i>Lupinus perennis</i>	Plant	G5	S2	TNC Comprehensive
Yellow Avens	<i>Geum aleppicum</i>	Plant	G5	S1	WLBG Projects
Yellow-fringed Orchid	<i>Platanthera ciliaris</i>	Plant	G5	S2	Cypress Creek Bog
Total Species-at-risk to benefit					186 Species