

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

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May 2008

**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 2008**

In the period from June 2007, the date of our first Performance Report for this grant, up to May 2008, Maryland’s Landowner Incentive Program has continued to provide on-site technical assistance to landowners, review applications, design projects and sign Landowner Agreements for habitat restoration projects. 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

	<b>March 2006 – June 2007</b>	<b>June 2007 – May 2008</b>	<b>TOTAL</b>
<b>On-site Technical Assistance</b>	<b>60 landowners</b>	<b>51 landowners</b>	<b>111 landowners</b>
<b>Applications reviewed</b>	<b>39</b>	<b>27</b>	<b>54</b>
<b>Applications approved</b>	<b>29</b>	<b>18</b>	<b>47 (1 cancelled)</b>
<b>Signed agreements</b>	<b>22</b>	<b>14</b>	<b>36</b>
<b>Projects on hold</b>	<b>12</b>	<b>5</b>	<b>NA</b>
<b>Projects in review</b>	<b>8</b>	<b>2</b>	<b>NA</b>

Landowners with 46 approved LIP projects together own approximately 23,622 acres of land. Approximately 2,662 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, 134 of them are targeted to benefit through LIP projects. Table 2 summarizes each project: the habitat type targeted, the practices used, the number of species to benefit, and the cost. Projects in green are new projects approved between June 2007 and May 2008. Figures in red are changes from the first annual report, due to budget changes in the course of the projects. The table lists only 46 of 47 approved projects because one project approved in 2006-2007 was subsequently cancelled. Some projects which list no target species target rare habitat types themselves. 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. The total amount LIP has expended or encumbered for these projects is \$644,686.07. We have documented \$143,876.46 in cash and in-kind matching funds required under the landowner agreements.

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Table 1: Maryland LIP projects as of May 2008

Project Name	Habitat type	Total # acres	# acres to be restored	# species at risk documented on property	# species at risk to benefit	Practice(s)	LIP expenditures (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
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	0	0	Reforestation (contiguous forest)	\$3,000.00
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
Cove Point Natural Heritage Trust	Coastal Plain Mature Forest	50	50	0	0	Invasive species control (plant and HWA)	\$7,823.00
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
Durham Point Farm	Calcareous Woodland	261	8	0	0	Tree planting	\$10,000.00
Felsen (Drum Pt.)	Beach	1	<1	0	1	Invasive species control	\$225.00
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	\$31,440.00
Gribble (Drum Pt.)	Beach	2	<1	0	1	Invasive species control	\$112.50
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	\$141,067.80
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
Lower Marlboro Town Citizens Assoc.	Tidal Emergent Marsh (Patuxent R.)	1	1	1	1	Invasive species control (Phragmites)	\$81.25

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Project Name	Habitat type	Total # acres	# acres to be restored	# species at risk documented on property	# species at risk to benefit	Practice(s)	LIP expenditures (does not include match)
Koste	Coastal Plain Mature Forest	164	25.5	1	0	Invasive species control (HWA), reforestation (contiguous forest)	\$9,944.75
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
Oldfield Farms	Coastal Plain Stream	1,378	2	1	1	Invasive species control	\$10,000.00
Pickering Creek Audubon	Coastal Plain Mature Forest	410	2	0	0	Invasive species control (HWA)	\$2,000.00
Rock Lodge Trust	Mountain Mature Forest, Grassland	3,157	75	12	2	Invasive species control, establishment of warm-season grassland	\$13,440.00
Rogers	Mountain Mature Forest, Grassland	205	39	0	10	Reforestation, establishment of warm-season grassland	\$15,600.00
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	\$71,000.85
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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Project Name	Habitat type	Total # acres	# acres to be restored	# species at risk documented on property	# species at risk to benefit	Practice(s)	LIP expenditures (does not include match)
The Nature Conservancy – Prescribed Burn	Groundwater Interfacing Wetland, Xeric Sand Ridge, Serpentine Barren	317	45	29	22	Vegetation management (prescribed burning)	\$36,980.12
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
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
<b>TOTALS:</b>		<b>23,622</b>	<b>2,662</b>	<b>233</b>	<b>135</b>		<b>\$644,686.07</b>

**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 first performance report, this is noted in green. Where figures have changed since the first performance report due to changes in projects underway, these are noted in red.

**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	43 acres	\$32,400
Grassland Buffers	75 acres	\$30,000	0	0
Invasive Species Control	50 acres	\$25,000	10.5 acres	\$23,600
Livestock Exclusion & Fencing	5000 ft	\$15,000	0	0
	<b>TOTAL:</b>	<b>\$220,000</b>	<b>0</b>	<b>\$56,000</b>

We are continuing to work with the Port Tobacco River Conservancy and the Potomac River Conservancy and expect to receive applications from them soon. We also sent out letters to 377 landowners with riverfront property within the McIntosh Run Ecologically Significant Area in St. Mary’s county, Maryland, and have received positive responses from nine of these landowners.

**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
	<b>TOTAL:</b>	<b>\$34,750</b>		<b>\$4,659.90</b>

Due to the rarity of barrens habitats, we have included serpentine barrens within this habitat type. We have undertaken targeted outreach to 42 landowners having records of either shale barren or serpentine barren dwelling species on their property. Since June 2007 we have provided on-site technical assistance to 3 landowners with shale barren habitat and 3 landowners with serpentine barren habitat. We expect applications from at least 2 of these.

**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
	<b>TOTAL:</b>	<b>\$50,000</b>		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	339.5 acres	\$56,308.39
Reforestation: Contiguous Forest	85 acres	\$85,000	29.5 acres	\$15,375.00
Invasive Species Control (HWA)	0	0	66 acres	\$21,137.50
Restoration of native vegetation	0	0	7.5	\$2,881.00
	<b>TOTAL:</b>	<b>\$100,000</b>		<b>\$95,701.89</b>

We have approved projects to treat 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.

**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
	<b>TOTAL:</b>	<b>\$97,500</b>		<b>\$2,000</b>

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

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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	97.5 acres	\$12,590.03
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
	<b>TOTAL:</b>	<b>\$91,250</b>		<b>\$105,859.58</b>

Due to the success of our first two prescribed grazing projects, we are providing funding for continued maintenance grazing on one of our original sites, 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
	<b>TOTAL:</b>	<b>\$50,000</b>		<b>\$8,000</b>

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:

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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
	<b>TOTAL:</b>	<b>\$146,500</b>		\$59,425.00

We have still been unable to have the Coastal Plain hemlocks treated on the projects approved for this treatment due to the high work-load of Maryland Department of Agriculture crews, but are hopeful that treatment will occur in the upcoming year.

We originally planned to do understory thinning to improve habitat for the federally threatened Delmarva fox squirrel. However, we have found that this procedure is often very expensive, with the benefits to the squirrels debatable. Instead we have focused on the creation of corridors between known fox squirrel populations, and have already planted one 8 acre tree corridor (Malkus) to facilitate fox squirrel movement.

**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:

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	81 acres	\$21,204.06
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
	<b>TOTAL:</b>	<b>\$66,700</b>		\$79,387.09

We continue to work with The Nature Conservancy on a new project that will fund monitoring and removal of invasive plants in and around Delmarva Bays on 120 additional acres on two preserves on the Eastern Shore of Maryland. We have also funded removal of encroaching woody plants from an additional 66 acres, 64 on The Nature Conservancy property and 2 on the property of another landowner adjacent to a Nature Conservancy Preserve. We have thus greatly exceeded our objectives for invasive control and vegetation management in this habitat type, although we have not had an opportunity to implement fencing. We conducted an outreach mailing to 52 landowners with records of Delmarva-bay dwelling rare species on their property. We spoke with 13 of these landowners, visited 6 of them, and received 1 application (Cherry).

**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
	<b>TOTAL:</b>	<b>\$25,000</b>		<b>\$42,459.17</b>

We have just approved an exciting 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. Invasive species control will be 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
Reforestation of Contiguous Forest	20 acres	\$20,000	0	0
Native plant community restoration	100 acres	\$20,000	25 acres	\$8,550.00
Invasive Species Control	10 acres	\$5,000	107 acres	\$16,080.36
Vegetation management – prescribed burn	0	0	25 acres	\$20,544.51
	<b>TOTAL:</b>	<b>\$45,000</b>		<b>\$45,174.87</b>

We have surpassed our goal for invasive species control and reached 25% of our goal for native plant community restoration through a project with Behnke’s Nursery, on the banks of the Patuxent River, to restore Patuxent Microdesert communities there.

**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

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Fallow field maintenance	0	0	28	\$3,203.88
Invasive species control	0	0	297	\$37,000.00
	<b>TOTAL:</b>	<b>\$40,000</b>		<b>\$85,642.88</b>

In consultation with Maryland DNR’s upland game bird biologist, we amended into our approved practices for grasslands a practice called “fallow field maintenance”. We pay an incentive payment per acre to crop 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 will be monitoring the response of quail and other birds to this practice to gauge its success.

**Additional Project: 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**

We are very proud of the work the Maryland Landowner Incentive Program has accomplished in just 2 years of implementing habitat restoration on private lands. 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 fencing, 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**

	<b>March 2006 – June 2007</b>	<b>June 2007 – May 2008</b>	<b>TOTAL</b>
<b>Total number of acres of wetlands under agreement to be improved, managed or restored</b>	<b>456.5</b>	<b>315.6</b>	<b>772.1</b>
			<b>Total cost: \$293,252.21 (\$379.81/acre)</b>
<b>Total number of non-wetland acres under agreement to be improved, managed or restored</b>	<b>1,452</b>	<b>437.9</b>	<b>1,889.9</b>
			<b>Total cost: \$351,433.86 (\$185.95/acre)</b>

**TOTAL COST: \$644,686.07**

**SECTION 7 REVIEW SUMMARY**

We have completed Section 7 reviews for 41 of our 46 approved landowner projects. Of these, 20 properties have no known occurrences of federally listed species. The remaining 21 are as follows:

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
Carpenter Frog	<i>Rana virgatipes</i>	amphibian	G5	S2	TNC Jackson Ln., TNC Comprehensive
Henslow's Sparrow	<i>Ammodramus henslowii</i>	bird	G	S1S2	RockLodge, Teets
Grasshopper sparrow	<i>Ammodramus savannarum</i>	bird	G5	GCN	JEDS Audubon, Rogers
Northern harrier	<i>Circus cyaneus</i>	bird	G5	S2B	JEDS Audubon
Northern bobwhite	<i>Colinus virginianus</i>	bird	G5	GCN	JEDS Audubon, Rogers, Schmidt, Spiering
Prairie warbler	<i>Dendroica discolor</i>	bird	G5	GCN	Rogers
Willow flycatcher	<i>Empidonax traillii</i>	bird	G5	GCN	Rogers
Worm-eating warbler	<i>Helmitheros vermivorus</i>	bird	G5	GCN	Rogers
Laughing gull	<i>Larus atricilla</i>	bird	G5	S1B	JEDS Audubon
Kentucky warbler	<i>Oporornis formosus</i>	bird	G5	GCN	Rogers
Savannah sparrow	<i>Passerculus sandwichensis</i>	bird	G5	S3S4B	JEDS Audubon
Pied-billed grebe	<i>Podilymbus podiceps</i>	bird	G5	S2B	JEDS Audubon, TNC Prescribed Burn
Vesper sparrow	<i>Pooecetes gramineus</i>	bird	G5	S3S4B	Rogers, JEDS Audubon
Louisiana waterthrush	<i>Seiurus motacilla</i>	bird	G5	GCN	Rogers
Dickcissel	<i>Spiza americana</i>	bird	G5	S2B	Rogers, JEDS Audubon
Field sparrow	<i>Spizella pusilla</i>	bird	G5	GCN	Rogers, JEDS Audubon
Least tern	<i>Sterna antillarum</i>	bird	G4	S2B	JEDS Audubon
Royal Tern	<i>Sterna caspia</i>	bird	G5	S1B	JEDS Audubon
Eastern meadowlark	<i>Sturnella magna</i>	bird	G5	GCN	Rogers, JEDS Audubon
Blue-winged warbler	<i>Vermivora pinus</i>	bird	G5	GCN	Rogers
Comely Shiner	<i>Notropis bifrenatus</i>	fish	G5	SH	BSA
Logperch	<i>Percina caprodes</i>	fish	G5	S1S2	BSA
Shield Darter	<i>Percina peltata</i>	fish	G5	S3	BSA
Brook Trout	<i>Salvelinus fontinalis</i>	fish	G5	S3S4	BSA, Zodhaites
Northeastern beach tiger beetle	<i>Cicindela dorsalis dorsalis</i>	insect	G4T2	S1	Drum Pt.
Tiger beetle	<i>Cicindela scutellaris rugifrons</i>	insect	G5	S3	Behnke's
Frosted Elf	<i>Incisalia irus</i>	insect	G3	S1	TNC Comprehensive
Giant swallowtail	<i>Papilio cresphontes</i>	insect	G5	S2	TNC Comprehensive
Cherrydrop snail	<i>Hendersonia occulta</i>	invertebrate	G5	S2	TNC Comprehensive
Delmarva Fox Squirrel	<i>Sciurus niger cinereus</i>	mammal	G5T3	S1	Malkus,
Smoky Shrew	<i>Sorex fumeus</i>	mammal	G5	S2S3	BSA
Green Floater	<i>Lasmigona subviridis</i>	mollusc	G3	S1	TNC Licking Cr.
Squawfoot	<i>Strophitus undulatus</i>	mollusc	G5	S2	TNC Licking Cr.
Sensitive Joint-vetch	<i>Aeschenomene virginia</i>	plant	G2	S1	Patuxent River
Running juneberry	<i>Amelanchier stolonifera</i>	plant	G5	S2	TNC Comprehensive
Curtiss' three-awn	<i>Aristida curtissii</i>	plant	G5	SU	TNC Prescribed Burn
Giant Cane	<i>Arundinaria gigantea</i>	plant	G5	S2	Sylvan View
Serpentine aster	<i>Aster depauperatus</i>	plant	G2	S1	TNC Prescribed Burn, TNC Comprehensive
Rough-leaved aster	<i>Aster radula</i>	plant	G5	S1	TNC Comprehensive
Aster-like Boltonia	<i>Boltonia asteroides</i>	plant	G5	S1	TNC Jackson Ln., TNC Prescribed Burn
Side-oats grama	<i>Bouteloua curtipendula</i>	plant	G5	S2	TNC Comprehensive
Porter's reedgrass	<i>Calamagrostis porteri</i>	plant	G4	S1	TNC Comprehensive
Harebell	<i>Campanula rotundifolia</i>	plant	G5	S2	TNC Comprehensive

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Common Name	Scientific Name	Type	Global rank	State rank	Project(s) where benefits
Little prickly sedge	<i>Carex echinata</i>	plant	G5	S1	TNC Comprehensive
Lake-bank sedge	<i>Carex lacustris</i>	plant	G5	S2	TNC Comprehensive
Hop-like Sedge	<i>Carex lupuliformis</i>	plant	G4	S1?	TNC Jackson Ln., Cherry
Dark green sedge	<i>Carex venusta</i>	plant	G4	S2	TNC Comprehensive
Inflated sedge	<i>Carex vesicaria</i>	plant	G5	S1	TNC Comprehensive
Velvety sedge	<i>Carex vestita</i>	plant	G5	S2	TNC Comprehensive
Leatherleaf	<i>Chamaedaphne calyculata</i>	plant	G5	S1	Sylvan View
Tall Larkspur	<i>Delphinium exaltatum</i>	plant	G3	S1	TNC Comprehensive
Few-flowered Tick-trefoil	<i>Desmodium pauciflorum</i>	plant	G5	S1	ACLT
Stiff tick-trefoil	<i>Desmodium strictum</i>	plant	G4	S1	TNC Prescribed Burn, TNC Comprehensive
Tall Swamp Panicgrass	<i>Dichanthelium scabriusculum</i>	plant	G4	S1	TNC Comprehensive
Glade fern	<i>Diplazium pycnocarpon</i>	plant	G5	S2	Weitzell
Leatherwood	<i>Dirca palustris</i>	plant	G4	S2	TNC Comprehensive
Knotted spikerush	<i>Eleocharis equisetoides</i>	plant	G4	S1	TNC Comprehensive
Robbins' spikerush	<i>Eleocharis robbinsii</i>	plant	G4G5	S1	TNC Prescribed Burn, TNC Comprehensive
Big-topped lovegrass	<i>Eragrostis hirsuta</i>	plant	G5	S1S2	TNC Prescribed Burn, TNC Comprehensive
Flattened Pipewort	<i>Eriocaulon compressum</i>	plant	G5	S2	TNC Comprehensive
Parker's pipewort	<i>Eriocaulon parkeri</i>	plant	G3	S2	TNC Prescribed Burn, TNC Comprehensive
White-bracted Boneset	<i>Eupatorium leucolepis</i>	plant	G5	S2S3	TNC Comprehensive
Harper's Fimbristylis	<i>Fimbristylis perpusilla</i>	plant	G2	S2	TNC Jackson Ln.
Smooth Fuirena	<i>Fuirena pumila</i>	plant	G4	S2S3	TNC Comprehensive
Featherfoil	<i>Hottonia inflata</i>	plant	G4	S1	TNC Jackson Ln., TNC Comprehensive
Creeping St. John's-wort	<i>Hypericum adpressum</i>	plant	G3	S1	TNC Prescribed Burn
Coppery St. John's-wort	<i>Hypericum denticulatum</i>	plant	G5	S2	TNC Jackson Ln.
Crested Iris	<i>Iris cristata</i>	plant	G5	S1	TNC Comprehensive
Dwarf Iris	<i>Iris verna</i>	plant	G5	S1	TNC Comprehensive
Brown-fruited rush	<i>Juncus pelocarpus</i>	plant	G5	S1	Sylvan View, TNC Prescribed Burn
Red-root	<i>Lachnanthes carolineana</i>	plant	G4	S1	TNC Prescribed Burn, TNC Comprehensive
Sandplain flax	<i>Linum intercursum</i>	plant	G4	S2	TNC Comprehensive
American Gromwell	<i>Lithospermum latifolium</i>	plant	G4	S1	TNC Comprehensive
Hairy Ludwigia	<i>Ludwigia hirtella</i>	plant	G5	S1	TNC Comprehensive
Wild lupine	<i>Lupinus perennis</i>	plant	G5	S2	TNC Comprehensive
Bog clubmoss	<i>Lycopodiella inundata</i>	plant	G5	S2	TNC Comprehensive
Lowland loosestrife	<i>Lysimachia hybrida</i>	plant	G5	S2	TNC Comprehensive
Climbing milkweed	<i>Matelea obliqua</i>	plant	G4?	S1	TNC Comprehensive
Ostrich Fern	<i>Matteuccia struthiopteris</i>	plant	G5	S2	BSA
Erect Water-hyssop	<i>Mecardonia acuminata</i>	plant	G5	S1	TNC Comprehensive
Narrow melicgrass	<i>Melica mutica</i>	plant	G5	S1	TNC Comprehensive
Three-flowered melicgrass	<i>Melica nitens</i>	plant	G5	S2	TNC Comprehensive
Rock sandwort	<i>Minuartia michauxii</i>	plant	G5	S2	TNC Comprehensive
Large-seeded Forget-me-not	<i>Myosotis macrosperma</i>	plant	G5	S2S3	ACLT
Black-fruited mtn. rice	<i>Oryzopsis racemosa</i>	plant	G5	S2	TNC Comprehensive

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Common Name	Scientific Name	Type	Global rank	State rank	Project(s) where benefits
White Fringed Orchid	<i>Platanthera blephariglottis</i>	plant	G4G5	S2	TNC Comprehensive
Pale green orchid	<i>Platanthera flava</i>	plant	G4	S2	TNC Comprehensive
Grove meadow-grass	<i>Poa alsodes</i>	plant	G4G5	S2	TNC Comprehensive
Cross-leaved milkwort	<i>Polygala cruciata</i>	plant	G5	S2	TNC Prescribed Burn, TNC Comprehensive
Seneca snakeroot	<i>Polygala senega</i>	plant	G4G5	S2	TNC Comprehensive
Alleghany plum	<i>Prunus alleghaniensis</i>	plant	G4	S2	TNC Comprehensive
Harperella	<i>Ptilimnium nodosum</i>	plant	G2	S1	TNC Comprehensive
Torrey's mountain-mint	<i>Pycnanthemum torrei</i>	plant	G2	S1	TNC Prescribed Burn, TNC Comprehensive
Virginia Mountain-mint	<i>Pycnanthemum virginianum</i>	plant	G5	S2	TNC Comprehensive
Hairy snoutbean	<i>Rhynchosia tomentosa</i>	plant	G5	S2	TNC Prescribed Burn, TNC Comprehensive
Drowned hornedrush	<i>Rhynchospora inundata</i>	plant	G3G4	S1	TNC Prescribed Burn, TNC Comprehensive
Tiny-headed Beakrush	<i>Rhynchospora microcephala</i>	plant	G5	S2S3	TNC Comprehensive
Long-beaked baldrush	<i>Rhynchospora scirpoides</i>	plant	G4	S2	TNC Prescribed Burn, TNC Comprehensive
Torrey's Beakrush	<i>Rhynchospora torreyana</i>	plant	G4	S2	TNC Comprehensive
Engelmann's arrowhead	<i>Sagittaria engelmanniana</i>	plant	G5	S2	Cherry, TNC Comprehensive
Long-beaked Arrowhead	<i>Sagittaria longirostra</i>	plant	GNRQ	SU	ACLT
Canada burnet	<i>Sanguisorba canadensis</i>	plant	G5	S2	TNC Comprehensive
Northern Pitcher-plant	<i>Sarracenia purpurea</i>	plant	G5	S2	TNC Comprehensive
Salt-marsh Bulrush	<i>Scirpus cylindricus</i>	plant	G5	S2	Durham Pt.
Water Clubrush	<i>Scirpus subterminalis</i>	plant	G4G5	S1	TNC Comprehensive
Slender nutrush	<i>Scleria minor</i>	plant	G4	S1	TNC Comprehensive
Shining nutrush	<i>Scleria nitida</i>	plant	GNR	S1	TNC Comprehensive
Reticulated nutrush	<i>Scleria reticularis</i>	plant	G4	S2	TNC Prescribed Burn, Cherry, TNC Comprehensive
Tall Nutrush	<i>Scleria triglomerata</i>	plant	G5	S1S2	TNC Comprehensive
Pink Bog-button	<i>Sclerolepis uniflora</i>	plant	G4	S2	TNC Comprehensive
Common skullcap	<i>Scutellaria galericulata</i>	plant	G5	S1	TNC Comprehensive
Leonard's skullcap	<i>Scutellaria leonardii</i>	plant	G4T4	S2	TNC Prescribed Burn, TNC Comprehensive
Veined Skullcap	<i>Scutellaria nervosa</i>	plant	G5	S1	TNC Comprehensive
Halberd-leaved greenbrier	<i>Smilax pseudochina</i>	plant	G4G5	S2	TNC Comprehensive
Showy Goldenrod	<i>Solidago speciosa</i>	plant	G5	S2	ACLT
Northern dropseed	<i>Sporobolus heterolepis</i>	plant	G5	S1	TNC Prescribed Burn
Featherbells	<i>Stenanthium gramineum</i>	plant	G4G5	S1	TNC Prescribed Burn, TNC Comprehensive
Mountain pimpernel	<i>Taenidia montana</i>	plant	G3	S2	TNC Comprehensive
Fameflower	<i>Talinum teretifolium</i>	plant	G4	S1	TNC Prescribed Burn, TNC Comprehensive
Bog fern	<i>Thelypteris simulata</i>	plant	G4G5	S2	TNC Comprehensive
Pale mannagrass	<i>Torreyochloa pallida</i>	plant	G5	S1	TNC Comprehensive
Kate's mountain clover	<i>Trifolium virginicum</i>	plant	G3	S2S3	TNC Comprehensive
Snow Trillium	<i>Trillium rivale</i>	plant	G4G5	S1	RockLodge, TNC Comprehensive, Teets

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Common Name	Scientific Name	Type	Global rank	State rank	Project(s) where benefits
Fibrous bladderwort	<i>Utricularia fibrosa</i>	plant	G4G5	S1	TNC Comprehensive
Purple bladderwort	<i>Utricularia purpurea</i>	plant	G5	S1	TNC Prescribed Burn
Reversed bladderwort	<i>Utricularia resupinata</i>	plant	G4	S1	TNC Prescribed Burn, TNC Comprehensive
Small cranberry	<i>Vaccinium oxycoccos</i>	plant	G5	S2	TNC Comprehensive
Goose-foot Cornsalad	<i>Valerianella chenopodiifolia</i>	plant	G5	S1	TNC Comprehensive
Marsh speedwell	<i>Veronica scutellata</i>	plant	G5	S1	TNC Comprehensive
Fringed Yelloweyed-grass	<i>Xyris fimbriata</i>	plant	G5	S1	TNC Comprehensive
Small's yelloweyed-grass	<i>Xyris smalliana</i>	plant	G5	S1	TNC Prescribed Burn, TNC Comprehensive
Northern prickly-ash	<i>Zanthoxylum americanum</i>	plant	G5	S1	TNC Comprehensive
Spotted turtle	<i>Clemmys guttata</i>	reptile	G5	GCN	JEDS Audubon
Bog Turtle	<i>Clemmys muhlenbergii</i>	reptile	G3	S2	Carney, Denner, Seitz, Zodhaites

**GRANT AGREEMENT PERFORMANCE REPORT**

**TO:** U.S. FISH AND WILDLIFE SERVICE  
WILDLIFE AND SPORT FISH RESTORATION PROGRAM  
HADLEY, MA

**FROM:** MARYLAND DEPARTMENT OF NATURAL RESOURCES  
WILDLIFE AND HERITAGE SERVICE  
ANNAPOLIS, MD

**GRANT AGREEMENT:** I-3-D-1

**GRANT TITLE:** LANDOWNER INCENTIVE PROGRAM, TIER 2

**TOTAL COSTS:** \$3,162

**PERFORMANCE PERIOD:** 7/1/2007-6/30/2008

**ANNUAL INTERIM PERFORMANCE REPORT FOR MARYLAND'S LANDOWNER INCENTIVE PROGRAM TIER 2 GRANT (I-3-D-1)**

*Prepared by Linh Phu, LIP Biologist  
Maryland Department of Natural Resources,  
Wildlife and Heritage Service*

September 2008

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

**GRANT PERIOD:** July 1, 2007-Jun 30, 2017

**PERFORMANCE PERIOD:** July 1, 2007- June 30, 2008

**SUMMARY OF WORK CONDUCTED UP TO JUNE, 30, 2008**

In the period from July 2007, the date of our first Performance Report for this grant, up to June 2008, Maryland's Landowner Incentive Program has continued to provide on-site technical assistance to landowners, review applications, design projects and sign Landowner Agreements for habitat restoration projects. Most of this work has been billed to our first grant I-2-HM-1 (2005 MD LIP Tier 2). To date we have encumbered 87.8% of this first grant and will continue billing projects to it until all funds have been fully encumbered. Due to this, we have only signed one landowner agreement for Grant I-3-D-1 for the practice of Delayed Harvest Payments to benefit Delmarva Fox Squirrel (a practice not included in I-2-HM-1).

Table 1: Technical Assistance and Application Review by the Maryland Landowner Incentive Program under Grant I-3-D-1

<b>Actions</b>	<b>June 2007 – May 2008</b>
<b>On-site Technical Assistance</b>	<b>11 landowners</b>
<b>Applications reviewed</b>	<b>11</b>
<b>Applications approved</b>	<b>1</b>
<b>Signed agreements</b>	<b>1</b>
<b>Projects on hold</b>	<b>1</b>
<b>Projects in review</b>	<b>1</b>

Table 2 summarizes our project: the habitat type targeted, the practices used, the number of species to benefit, and the cost. The total amount LIP has expended or encumbered for these projects is \$42,375. We have documented \$1,412.50 in cash and in-kind matching funds required under the landowner agreements.

Table 1: Maryland LIP projects under grant I-3-D-1 as of June 2008

Project Name	Habitat type	Total # acres	# acres to be restored	# species at risk documented on property	# species at risk to benefit	Practice(s)	LIP expenditures (does not include match)
Eby, Bradley	Coastal Plain Mature Forest	50	50	1	1	Delayed Harvest Payments to benefit Delmarva Fox Squirrels	\$42,375
<b>TOTALS:</b>		50	50	1	1		\$42,375

**SUMMARY OF OBJECTIVES AND PROGRESS SO FAR**

Since we have only signed one landowner agreement under this grant, we have only made progress towards one of our 12 specified projects.

**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	50 acres	\$50,000	0	0
Invasive Species Control	15 acres	\$7,500	0	0
Delayed Harvest Payment in Delmarva Fox Squirrel habitat	50acres	\$56,500	50acres	\$42,375
Vegetation management:	15acres	\$7,500	0	0
	<b>TOTAL:</b>	<b>\$121,500</b>		<b>\$42,375</b>

We have been able to fulfill our goals for the practice of Delayed harvest payments at a lowered projected cost. The 25% match is being met because the landowner will be accepting a 25% reduction in the delayed harvest payments. The regular rate is \$113/acre/year and the landowner is accepting \$84.75/acre/year. The other practices under this Project are still being billed to our first grant I-2-HM-1.

**SECTION 7 REVIEW SUMMARY**

We have completed Section 7 reviews for 41 of our 46 approved landowner projects. Of these, 20 properties have no known occurrences of federally listed species. The remaining 21 are as follows:

Project(s)	Species	Determination
Eby, Bradley	Delmarva Fox Squirrel	No effect

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

Common Name	Scientific Name	Type	Global rank	State rank	Project(s) where benefits
Delmarva Fox Squirrel	<i>Sciurus niger cinereus</i>	vertebrate	G5T3	S1	Eby, Bradley