

Forestry, Wildlife, and Fishery Systems

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V(A). Planned Program (Summary)

1. Name of the Planned Program

Forestry, Wildlife, and Fishery Systems

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
123	Management and Sustainability of Forest Resources	76%	76%	38%	
125	Agroforestry	7%	7%	7%	
135	Aquatic and Terrestrial Wildlife	12%	12%	12%	
311	Animal Diseases	0%	0%	33%	
605	Natural Resource and Environmental Economics	5%	5%	5%	
610	Domestic Policy Analysis	0%	0%	5%	
	Total	100%	100%	100%	

V(C). Planned Program (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2008	Extension		Research	
	1862	1890	1862	1890
Plan	24.2	4.7	49.0	0.0
Actual	8.0	1.0	45.0	0.0

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c 135413	1890 Extension 40799	Hatch 525949	Evans-Allen 0
1862 Matching 523468	1890 Matching 40799	1862 Matching 3128082	1890 Matching 0
1862 All Other 481548	1890 All Other 0	1862 All Other 1841198	1890 All Other 0

V(D). Planned Program (Activity)

1. Brief description of the Activity

UT and TSU Extension partnered with the Tennessee Forestry Association to plan and conduct group meetings to inform forest landowners of issues pertaining to forestry and wildlife. Topics included management and marketing. Volunteers were recruited and trained to present at group meetings, provide information, demonstrate equipment and provide materials for demonstrations. UT and TSU Extension provided education at local, regional and statewide events, such as the Tennessee Forest Festival to inform the general public about forest management issues. Demonstrations were provided for landowners and forestry workers. Extension Agents and Specialists educated attendees at County Forestry Landowners Association meetings. UT and TSU Extension worked closely with private consultants, Tennessee Wildlife Resources Agency employees, Tennessee Division of Forestry and others in forestry related industries to develop educational programs and activities for professionals and landowners.

UT and TSU Extension continued one-on-one contacts with landowners throughout the year and used mass media and newsletters to inform the general public on issues and educational opportunities related to natural resources. Both UT and TSU Extension provided leadership for conducting programs that targeted limited resource landowners with TSU providing specialist leadership for this effort.

For Tennessee's forestry sector, UT AgResearch continues biological control of Hemlock Woolly Adelgid by known predators and new species and release technologies. We evaluate methods of increasing seedling success, and techniques for improving reforestation. We exploit genetic variation in nursery and field characteristics of native hardwood and coniferous forest tree species. We try novel strategies to address exotic forest tree pests and corresponding forest restoration. We establish collections of woody plants, including species and cultivars, and plants having potential commercial value as forest species or for landscape development, from which materials may be obtained for breeding/propagation.

For wood products manufacturing, we characterize key parameters associated with the formation of durable, high-performance composite materials, and establish new statistical methods to advance intelligent manufacturing practices. We explore new methods to produce carbon fibers from low-quality raw materials and are developing a process for bonding plastic or polymer to lignocellulosic fibers (using ultrasonic vibration) as a replacement for toxic wood preservatives.

We identify approaches and services to landowners that would enable them to realize a wide range of landownership benefits while fostering stewardship and sustainability of private forest lands in Tennessee. Both qualitative (e.g., personal interviews and focus groups) and quantitative (e.g., survey responses) data are collected and analyzed to better understand landowners understanding of management.

Although manipulative studies of tree seedlings and saplings are cost effective and quick, recent research has shown that they may not allow for valid predictions on mature trees. Therefore, direct experiments on large trees or forested catchments have been developed. Experiments are being conducted on local forest research sites developed by the Department of Energy (DOE). Each are large-scale, multi-year, multi-investigator experiments.

UT AgResearch wildlife and fisheries research evaluates and quantifies the effects of deer on agricultural production and identifies associated land-use patterns and biological and ecological factors that could be used for reducing that impact. We monitor target avian species and relate specific population parameters to factors affecting forest health and sustainability, and develop new forest management prescriptions that promote sustainability. We develop prediction methods and evaluate selected aquatic species in existing and new production systems adapted to Tennessee's climate and geography.

2. Brief description of the target audience

The target audiences for this program are forest landowners and the professionals and volunteers who serve them.

V(E). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons (contacts) reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	10000	20000	10000	20000
2008	16143	190934	29563	20000

2. Number of Patent Applications Submitted (Standard Research Output)

Patent Applications Submitted

Year	Target
Plan:	1
2008:	2

Patents listed

Wang S. and C. Xing. 2008. Wood adhesives containing reinforced additives for structural engineering products. Patent application

Tim Young. 2008. Spectroscopic prediction of formaldehyde emission and thickness swell of wood panels. Patent Application No. 61037171.

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan	0	40	
2008	5	60	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

Number of exhibits built and displayed to promote program awareness and participation.

Year	Target	Actual
2008	5	8

Output #2

Output Measure

Release of Hemlock Woolly Adelgid predators reared in Tennessee.

Year	Target	Actual
2008	200000	120000

Output #3

Output Measure

Golden-winged warbler conservation strategy in place for the Cumberland Mountains of Tennessee.

Not reporting on this Output in this Annual Report

Output #4

Output Measure

Identify whether or not amphibians are suitable hosts of E coli, and determine aquatic factors that contribute to infectivity.

Year	Target	Actual
2008	0	1

Output #5

Output Measure

Engage in discussions with TVA to consider advancing reservoir drawdowns, as a means of increasing mudflat habitat and slowing population loss of migrating shorebirds.

Year	Target	Actual
2008	1	1

Output #6

Output Measure

Deploy tree-scale field cages for evaluation of introduced natural enemies against Hemlock Woolly Adelgids, number of cages.

Year	Target	Actual
2008	20	19

V(G). State Defined Outcomes

O No.	Outcome Name
1	Agroforestry for Underserved Landowners: Number of underserved landowners who are now alley cropping with annual crops and high-value hardwoods due to technical assistance provided by specialists.
2	Agroforestry for Underserved Landowners: Number of underserved landowners who began pursuing forest farming operations of high-value speciality crops such as herbs, medicinal plants or mushrooms due to technical assistance provided by specialists.
3	Agroforestry for Underserved Landowners: Number of underserved landowners who planted riparian buffer strips along waterways due to technical assistance provided by specialists.
4	Forest Landowner Education: Number of landowners who now understand the ecology of forest development and succession (using forest management plans or contacting a professional forester.)
5	Forest Landowner Education: Number of landowners who improved profitability (marketing) of forest ownership.
6	Scientists employing our findings on forest health, including resilience to drought stress, and the role of beneficial soil organisms in modeling environmental changes to drought.
7	Acres of production of freshwater prawn in Tennessee as an alternative income source.
8	Cerulean warbler response to forest management.
9	Effects of native grassland management on bird species.
10	The National Survey on Recreation and Environment.
11	Setting hunting and fishing regulations.
12	Quality Deer Management.
13	Mixing natural and synthetic polymers.
14	Crop tree management for optimum growth.
15	Forest product mill optimization.
16	Improved wooden barrel quality.
17	Lyme disease and the primary tick vector.
18	Forest Protection in Great Smoky Mountains.
19	Managing Disturbance In Hardwood Forests.
20	Mycorrhiza, Drought, and Forest Health.
21	Oriented Strandboard Process Monitoring.

Outcome #1

1. Outcome Measures

Not reporting on this Outcome for this Annual Report

2. Associated Institution Types

3a. Outcome Type:

3b. Quantitative Outcome

Year	Quantitative Target	Actual
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3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
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V(H). Planned Program (External Factors)

External factors which affected outcomes

Natural Disasters (drought, weather extremes, etc.)

Economy

Appropriations changes

Public Policy changes

Government Regulations

Competing Public priorities

Competing Programmatic Challenges

Brief Explanation

In several cases, research is proceeding normally, but initial targets were overly optimistic.

V(I). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

After Only (post program)

Time series (multiple points before and after program)

Case Study

Comparisons between different groups of individuals or program participants experiencing different levels of program intensity.

Comparison between locales where the program operates and sites without program intervention

Other (Observation)

Evaluation Results

{No Data Entered}

Key Items of Evaluation

{No Data Entered}