

Curriculum Vitae Jonathan S. Kays

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Curriculum Vitae Jonathan S. Kays

Certification Statement

I certify that this curriculum vitae is accurate and complete.

Signature: _____



Date: June 2006

Personal Information

Jonathan S. Kays

Extension Specialist - Natural Resources

Maryland Cooperative Extension (MCE)

Western Maryland Research and Education Center (WMREC)

18330 Keedysville Road, Keedysville, MD 21756

(301) 432-2767 ext. 323 - Email: jkays@umd.edu

Senior Agent: 1994

Principal Agent: 2001

Sabbatical: August 1996 - February 1997; October 2004 – April 2005

Affiliate Professor, Department of Natural Resource Sciences and Landscape Architecture, January 2005

Educational Background

1985 Virginia Tech, Blacksburg, VA, M.S., Forest Management/Silviculture

1977 Cook College, Rutgers University, New Brunswick, NJ, B.S., Natural Resources
Management/Secondary Teacher Education

1974 Seton Hall University, South Orange, NJ, Science

1973 Bryant College of Business, Smithfield, RI, Business

Employment History

10/88 to Present - Extension Specialist - Natural Resources, MCE, WMREC, Keedysville, MD

10/04 to 4/05- Sabbatical Leave, research and develop new program areas in rural enterprise

8/96 - 2/97 - Sabbatical Leave, research and develop new program areas in biosolids and trees, and landowner liability.

8/92 to 5/99 - Adjunct Faculty, Introduction to Wildlife Management Instructor, Parks Department, Frederick Community College, Frederick, MD

10/87 to 10/88 - County Forester, Virginia Department of Forestry, Providence Forge, VA

7/85 to 10/87 - Research Assistant II, Institute of Ecosystem Studies, Millbrook, NY

7/86 to 10/87 - Private Consulting Forester, Wildwood Consultants, Millbrook, NY

9/82 to 6/85 - Graduate Research Assistant, Department of Forestry and Wildlife, Virginia Tech, Blacksburg, VA

9/81 to 9/82 - Earth Science Teacher, Montville Township High School, Montville, NJ

4/80 to 12/80 - Forest Resources Technician, Idaho Department of Public Lands, Sandpoint, ID

6/77 to 10/78 - Forestry Technician, United States Department of Agriculture (USDA) Forest Service, Bonners Ferry, ID

Research, Scholarly and Creative Activities

Articles in Refereed Journals

Kays, J. S., D. W. Smith, S. M. Zedaker, & R. Kreh. (1988). Factors affecting hardwood regeneration on the Virginia Piedmont. Southern Journal Applied Forestry, 12, 98-102.

Kays, J. S., & C. W. Canham. (1991). Effect of time and frequency of cutting on hardwood root reserves. Forest Science, 37, 524-529.

Kays, J. S., E. J. Flamino, G. Felton, & P. D. Flamino. (2000). Use of deep-row biosolids applications to grow forest trees: a case study. In C.L. Henry, R.B. Harrison, and R.K. Bastian (Eds.), The Forest Alternative: Principles and Practice of Residuals Use. (pp. 105-110). Seattle, WA: University of Washington College of Forest Resources

Kays, J. S. (2004). Alternative income opportunities: needs of county agents and foresters in the mid-Atlantic Region. Journal of Extension, 42 (2). Available at: <http://www.joe.org/joe/2004april/rb6.shtml>

Sharew, H. & J. S. Kays. (2006). Vole Damage Control in Tree Plantations. Field Note. Northern Journal of Applied Forestry. Accepted for publication in 2005. To be published in 2006.

Edited Proceedings:

Kays, J. S. (1994). Use of Low-Cost Deer Fencing to Protect High Value Crops. In J. Hanson (Ed.), 1994 Profitable Agriculture and a Clean Environment Update (pp. 41-44). College Park, MD: UMCP, MCE.

Kays, J. S. (1996). Use of Dogs and Invisible Fencing to Keep Deer Out of Crop Areas. In D. M. Johnson & K. L. Everts (Eds.), 1996 Profitable Agriculture and a Clean Environment Update (pp. 19-24). College Park, MD: UMCP, MCE.

Kays, J. S. (1996). Use of baited polywire/polytape fencing to protect forest plantations. In D. M. Johnson & K. L. Everts (Eds.), 1996 Profitable Agriculture and a Clean Environment Update (pp. 16-18). College Park, MD: UMCP, MCE.

Kays, J. S. (1996). Use of deep-row biosolids applications to grow forest trees and reclaim wildlife habitat: a case study. In D. M. Johnson & K. L. Everts (Eds.), 1996 Profitable Agriculture and a Clean Environment Update (pp. 25-29). College Park, MD: UMCP, MCE.

Kays, J. S., G. R. Goff, P. J. Smallidge, W. N. Grafton, & J. A. Parkhurst. (Eds.). (1998). Natural Resources Income Opportunities for Private Lands - Proceedings of the Conference. College Park, MD: University of Maryland, College Park (UMCP), MCE. 275 pp. (Lead editor and contributing writer)

Brittingham, M., J. S. Kays, R. McPeake (Eds.). (2001). Wildlife Damage Management Conference Proceedings. University Park, PA: Penn State University, State College, PA.

Reports:

Kays, J. S., R. L. Tjaden, & J. C. Hanson (1993 - 1997). Renewable Resources Extension Act (RREA) Federal Report for Maryland. Keedysville, MD: UMCP, MCE. 8 pp. (Editor and contributing writer for annual report prepared at request of Agricultural and Natural Resources Program Leader).

Kays, J. S. (1990 - 2003). Coverts Project Annual Report. Keedysville, MD: UMCP, MCE. 8 pp. (Annual 8-page report on project accomplishments prepared for grantor. Lead writer and editor).

Kays, J. S., & V. M. Schultz. (1998). Maryland Coverts Project: Improving Forests and Wildlife Habitat Through Education. College Park, MD: UMCP, MCE. 4 pp. (Summary of project purpose and accomplishments from 1990-1997. Lead editor and contributing writer).

Kays, J. S. (1998). Improving Success of Natural Resources Income Enterprises: Increasing Extension's Value to Rural Landowners. (Miscellaneous Publication). College Park, MD: UMCP, MCE. 8 pp. (Editor and contributing writer. Layout done by outside consultant).

Kays, J. S., & R. L. Tjaden. (1999). Extension Natural Resources Education Programs: Accomplishments, Exploratory Issues, and Areas of Concern. Keedysville, MD: UMCP, MCE. 7 pp. (Co-authored effort requested by program leader and Associate Dean to highlight program area. Presented to the Governor's Task Force on Forestry in 1999).

Tjaden, R. L., & J. S. Kays. (2000). Maryland Stumpage Price Report. Queenstown, MD: UMCP, MCE. Assisted in initial development and layout of a quarterly report to provide landowners and foresters prices being paid to private forest owners for their timber products (known as stumpage prices).

Kays, J. S., G. K. Felton, C. U. Buswell, & E. Flamino. (2005). Determination of Optimal Tree Density and Biosolid Application Rate and the Effect on Water Quality and Tree Growth Using the Deep Row Biosolids Incorporation Method. Keedysville, MD: UMCP, MCE. 127 pp. Third year final report for \$350,000 grant project. Used as basis for continued funding and peer review publications

Sharew, H. & J. S. Kays. (2005). Vole Damage Control in Forest Plantations. Annapolis, MD: MD-DNR Forest Service [Online]. Available at: www.dnr.state.md.us/forests/download/vole_damage.pdf

Kays, J. S. Extension Forestry at the College Of Agriculture & Natural Resources (1968-2005). Prepared at request of DNR State Forester for inclusion in publication entitled, "100 Year of Forest Conservation: Our History, Our Roots." 3 pp.

Extension Publications (Refereed):

Woodland Management Series

Publications are used as educational handouts and incorporated into a variety of manuals and courses.

Kays, J. S., & R. L. Tjaden. (1994, revised 1997). Glossary of Forestry Terms. (Fact Sheet 620). College Park, MD: UMCP, MCE. 12 pp.

Kays, J. S., & R. L. Tjaden. (1994, revised 1997,). Sources of Information and Guidance for Forest Stewards. (Fact Sheet 624). College Park, MD: UMCP, MCE. 12 pp.

Kays, J. S., & R. L. Tjaden. (1994, revised 1996, revised 2001). Developing a Forest Stewardship Plan: The Key to Good Forest Management. (Fact Sheet 625). College Park, MD: UMCP, MCE. 8 pp.

Kays, J. S., & R. L. Tjaden. (1994, reprinted 1997). Marketing Forest Products: The Sales Contract. (Fact Sheet 628). College Park, MD: UMCP, MCE. 8 pp.

Kays, J. S., & R. L. Tjaden. (1995, reprinted 1997). How To Determine Your Property Boundaries. (Fact Sheet 619). College Park, MD: UMCP, MCE. 8 pp.

Kays, J. S. (1995, reprinted 1998). Maryland's Forests: Past, Present, and Future. (Fact Sheet 627). College Park, MD: UMCP, MCE. 8 pp.

Kays, J. S. (1995, revised 2003). Alternative Woodland Income Opportunities Resources List. (Fact Sheet 626). College Park, MD: UMCP, MCE. 8 pp.

Kays, J. S., & R. L. Tjaden. (1996, reprinted 1999). Measuring Your Forest. (Fact Sheet 629). College

Park, MD: UMCP, MCE. 8 pp.

Kays, J. S., D. M. Johnson, & J. Stringer. (1996, revised 1997). Producing and Marketing Paulownia. (Extension Bulletin 319). College Park, MD: UMCP, MCE. 22 pp.

Kays, J. S. (1997). Landowner Liability and Recreational Access in Maryland. (Extension Bulletin 357). College Park, MD: UMCP, MCE. 27 pp.

Bogash, S. M., & J. S. Kays. (1999). Developing a Fee-Fishing Enterprise: An Opportunity in Recreational Tourism. (Fact Sheet 754). College Park, MD: UMCP, MCE. 8pp.

Goff, G., J. S. Kays, M. Greason, J. E. Wagner, & H. Canham. (2000). Developing a Custom Portable Bandsaw Mill Enterprise. Keedysville, MD: UMCP, MCE. 24 pp.

Jenkins, D. H., J. S. Kays, & A. L. Hammett. (2000). Natural Resources Income Opportunities Series: Special Forest Product Enterprises: Holiday Greenery. Keedysville, MD: UMCP, MCE, Virginia Tech. 14 pp.

Kays, J. S., & V. M. Schultz. (2003). Tax Considerations for Forest Landowners. (Fact Sheet 630). College Park, MD: UMCP, MCE.

Kays, J. S. & L. Bittenbender. (2003). Working Forest Conservation Easements: A Primer for Forest Landowners. (Information Sheet). College Park, MD: UMCP, MCE (Submitted for publication and undergoing edits.) Available at:
<http://www.naturalresources.umd.edu/Pages/Workingforestsfs/Workingforest.htm>

Kays, J. S. & J. Drohan. (2004). Guide to Choosing and Evaluating a Natural Resources-Based Enterprise. (NRAES-151). Ithaca, NY: Natural Resource Agricultural Engineering Service (NRAES). 99 pp.

Kays, J. S. & L. Bittenbender. (2004). Marketing Forest Products: Understanding the Sales Process. (Extension Bulletin 367). College Park, MD: UMCP, MCE.

Kays, J. S., G. Goff, M. Milauskas, M. Greason, J. E. Wagner, & H. Canham. (submitted 2005). Developing a Custom Portable Sawmill Enterprise. (NRAES). Ithaca, NY: Natural Resource Agricultural Engineering Service (NRAES). Printing expected 2006.

Wildlife Damage Management

Kays, J. S., M. V. Bartlett, & L. Curtis. (1994, revised 1996, 1998, 2000, 2003). Resistance of Ornamentals to Deer Damage. (Fact Sheet 655). College Park, MD: UMCP, MCE. 8 pp.

Kays, J. S. (1995, revised 1997, 2000, & 2003). Managing Deer Damage in Maryland. (Extension Bulletin 354). College Park, MD: UMCP, MCE. 20 pp.

Kays, J. S., & E. M. Dutky. (1996, reprinted 1999, 2004). Reducing Vole Damage in Nurseries, Orchards, and Landscapes. (Fact Sheet 654). College Park, MD: UMCP, MCE. 8 pp.

Kays, J. S. (2003). Managing Vole Damage in Tree Plantations. Keedysville, MD: UMCP, MCE. 12 pp. Submitted for publication as MCE publication, undergoing edits. Available at:
http://www.naturalresources.umd.edu/Pages/Vole_fs.pdf

Tregoning, D. & J. S. Kays. (2003). Using Commercial Deer Repellents to Manage Deer Browse in the Landscape (Fact Sheet 810A). College Park, MD: UMCP, MCE.

Wildlife Management Series

These seven facts sheets are part of a larger 17 fact sheet series.

Tjaden, R. L., & J. S. Kays. (1993). Introduction to Wildlife Management. (Fact Sheet 597). College Park, MD: UMCP, MCE. 8 pp.

Tjaden, R. L., & J. S. Kays. (1993). Brush Structures for Wildlife. (Fact Sheet 599). College Park, MD: UMCP, MCE. 8 pp.

Tjaden, R. L., & J. S. Kays. (1993). Eastern Cottontail Rabbit. (Fact Sheet 601). College Park, MD: UMCP, MCE. 8 pp.

Tjaden, R. L., & J. S. Kays. (1993). Bobwhite Quail. (Fact Sheet 602). College Park, MD: UMCP, MCE. 8 pp.

Tjaden, R. L., & J. S. Kays. (1993). Ringed-Necked Pheasant. (Fact Sheet 603). College Park, MD: UMCP, MCE. 8 pp.

Tjaden, R. L., & J. S. Kays. (1993). Ruffed Grouse. (Fact Sheet 604). College Park, MD: UMCP, MCE. 8 pp.

Tjaden, R. L., & J. S. Kays. (1993). Eastern Wild Turkey. (Fact Sheet 606). College Park, MD: UMCP, MCE. 8 pp.

Extension Fact Sheets (Non-refereed):

Publications below were draft forms of many refereed fact sheets. They were used extensively in educational efforts until official refereed publications were printed.

Kays, J. S., & R. L. Tjaden. (1990). Sources of Christmas Tree Growing Stock. Keedysville, MD: MCE. 6 pp.

Kays, J. S. (1990, Revised 1993). Information on Growing Paulownia. Keedysville, MD: MCE. 2 pp.

Kays, J. S. (1991, Revised 1993 & 1999). Video Resources for Natural Resources Managers. Keedysville, MD: MCE. 4 pp.

Kays, J. S. (1993). Deer Protection For Forest Plantations: Comparisons Between Tree Shelters, Electric Fencing, and Repellents. FOR-1. Keedysville, MD: MCE. 6 pp.

Kays, J. S. (1993). Controlling Deer Damage in Maryland. FOR-2. Keedysville, MD: MCE. 12 pp. (Initial publication that preceded Extension bulletin 354)

Kays, J. S. (1993). Low-Cost Electric Deer Fence for Many Small Acreage Applications. Keedysville, MD: MCE. 6 pp.

Kays, J. S. & J. Drohan. (2003) Rural Enterprise Series: Aquaculture Enterprise (RES-01). Keedysville, MD: MCE [Online]. Available at: www.naturalresources.umd.edu/Pages/RES_01Aqua.pdf

Kays, J. S. & J. Drohan. (2003) Rural Enterprise Series: Fee Fishing (RES-02). Keedysville, MD: MCE [Online]. Available at: http://www.naturalresources.umd.edu/Pages/RES_02FeeFishing.pdf

Kays, J. S. & J. Drohan. (2003) Rural Enterprise Series: Holiday Greenery (RES-03). Keedysville, MD: MCE [Online]. Available at: http://www.naturalresources.umd.edu/Pages/RES_03HolidayGreenery.pdf

Kays, J. S. & J. Drohan. (2003) Rural Enterprise Series: Custom Portable Sawmill Enterprise (RES-04A). Keedysville, MD: MCE [Online]. Available at: http://www.naturalresources.umd.edu/Pages/RES_04BSawmill2.pdf

Kays, J. S. & J. Drohan. (2003) Rural Enterprise Series: Traditional White Oak Basketmaking Enterprise (RES-05). Keedysville, MD: MCE [Online]. Available at: http://www.naturalresources.umd.edu/Pages/RES_05Basketmaking.pdf

Kays, J. S. & J. Drohan. (2003) Rural Enterprise Series: Ginseng Enterprise (RES-06). Keedysville, MD: MCE [Online]. Available at: http://www.naturalresources.umd.edu/Pages/RES_06Ginseng.pdf

Kays, J. S. & J. Drohan. (2003) Rural Enterprise Series: Hunting Lease Enterprise (RES-07). Keedysville, MD: MCE [Online]. Available at: http://www.naturalresources.umd.edu/Pages/RES_07HuntingLease.pdf

Kays, J. S. & J. Drohan. (2003) Rural Enterprise Series: Christmas Tree Enterprise (RES-08). Keedysville, MD: MCE [Online]. Available at: http://www.naturalresources.umd.edu/Pages/RES_08ChristmasTree.pdf

Kays, J. S. & J. Drohan. (2003) Rural Enterprise Series: Vacation Cabin Enterprise (RES-09). Keedysville, MD: MCE [Online]. Available at: http://www.naturalresources.umd.edu/Pages/RES_09VacationCabin.pdf

Kays, J. S. & J. Drohan. (2003) Rural Enterprise Series: Horse Boarding Enterprise (RES-10). Keedysville, MD: MCE [Online]. Available at: http://www.naturalresources.umd.edu/Pages/RES_010HorseBoarding.pdf

Kays, J. S. & J. Drohan. (2003) Rural Enterprise Series: Shiitake Mushroom Enterprise (RES-11). Keedysville, MD: MCE [Online]. Available at: http://www.naturalresources.umd.edu/Pages/RES_011Shiitake.pdf

Kays, J. S., J. Drohan, A. Downing, & J. Finley. (2005). The Woods in Your Backyard: Learning to Implement Your Goals for Your Backyard Natural Area. Keedysville, MD: MCE, Penn State Extension, Virginia Cooperative Extension. 84 pp. (45 copies printed for use with focus group testing in four northeastern states. Final printing expect summer, 2006)

Kays, J. S., J. Drohan, A. Downing, & J. Finley. (2005). The Woods in Your Backyard: A Workbook. Keedysville, MD: MCE, Penn State Extension, Virginia Cooperative Extension. 36 pp. (45 copies printed for use with focus group testing in four northeastern states. Final printing expected summer, 2006).

Book / Paper /Grant Reviews, Other Articles, and Notes

Book / Paper / Grant Reviews:

Hill, D., & L. Buck. (1997). Forest Farming. In G. Garrett, (Ed.), North American Agroforestry: An Integration of Science and Practice. Agronomy Society of America. (Review of the chapter in book)

Therres, G., & S. Smith. (1998). Conserving Biological Diversity: A Key To Restoration of the Chesapeake Bay and Beyond. In Proceedings of the Conference on Biological Diversity and the Chesapeake Bay. (Review of paper in proceedings requested by first author.)

Two papers reviewed for the Journal of Environmental Horticulture in 1999 entitled: 1) Regional Survey of Deer Damage Throughout Northeast Nurseries and Orchards, and; 2) Evaluation of Commercial Deer Repellents on Ornamental in Nurseries. (Review requested by journal editor.)

McEvoy, T. (2000). Introduction to Forest Ecology and Silviculture. Ithaca, NY: Cornell University, Natural Resources, Agriculture, and Engineering Service . (Review of book requested by publisher.)

Sexton, P. J., et. al. (2000). Poplar Cultivation: Analysis of its Potential Effects on Wildlife, Soil, and Profitability in Diversified Farming Systems of the Pacific Northwest. Washington, D.C.: USDA. (Review of \$492,167 grant proposal requested by the Agricultural Systems Program for the USDA National Research Initiative Competitive Grants Program.)

Hairston-Strang, Anne. (2005). Riparian Forest Buffer Design and Maintenance. Annapolis, MD: Maryland Department of Natural Resources Forest Service. (Review requested by author).

Metropolitan Washington Council of Governments (COG) (2005). Market Survey of Alternative Uses for Biosolids and Other Organic Nutrient Products in the Washington Metropolitan Area. Queenstown, MD: Maryland Center for Agroecology. (Asked by Center for Agroecology to review \$52,595 grant proposal submitted for their annual grant program).

Extension Articles in Trade Publications:

Kays, J. S. (1995, Fall). Un-Deering Experiences. Habichat: For Stewards of Maryland's Backyard Wildlife, Vol. 4, No. 4. Official newsletter of MDNR Wildlife Division Wild Acres Program. (Submission requested by magazine editor.)

Kays, J. S. (1995, November). Wildlife Damage Control: Resistance of Woody Ornamentals to Deer Damage. Groundwork, (pp. 8-9, 28). Official publication of Landscape Contractors Association MD, DC, VA. Request was received to reprint the article in Delaware Extension Newsletter. (Submission requested by magazine editor.)

Kays, J. S., & E. M. Dutky. (1996, February). Reducing Vole Damage to Plants. Groundwork, (pp. 14, 15, 24). Official publication of Landscape Contractors Association MD, DC, VA. (Submission requested by magazine editor.)

Kays, J. S. (1996, Spring). Understanding Deer Damage Management. Deer-Alert, (p. 2). Quarterly newsletter with national distribution for business and people involved with deer damage management. (Submission requested by magazine editor.)

Kays, J. S. (1998, January/February). Natural Resources Income Opportunities: Considerations for Forest Owners. Forest Landowner Magazine, Vol. 57, No. 1. (pp. 36-39). Forest Landowner is published six times per year by the Forest Landowner Association with a national circulation of 11,000 copies. Forest Landowner is a progressive grassroots organization of landowners who own 47 million acres of timberland primarily in the southern and eastern states. (Submission requested by magazine editor)

Kays, J. S. (1998, Fall). Forest Stewardship and Easements: A Necessary Partnership. Maryland Environmental Trust Newsletter. Periodic newsletter mailed to 50 Maryland land trusts, state agencies and partner land trusts in the Mid-Atlantic region.

Kays, J. S. (1998, September/October). Forest Stewardship and Easements: A Necessary Partnership. The Crosscut. Published by the Maryland Forests Association which is a non-profit citizens organization of approximately 550 forest landowners, foresters, loggers, and wood-using industries.

Kays, J. S. (1998, Spring). Considering Other Woodland Income Opportunities? Branching Out: Maryland's Forest Stewardship Educator. Vol. 6, No.1. (pp. 1-2). Extension newsletter mailed to 4,500 forest landowners and natural resources professionals in Maryland.

Kays, J. S., & V. M. Schultz. (1998, Fall). What is Green Forest Certification? Branching Out: Maryland's Forest Stewardship Educator. Vol. 6, No.3, (pp. 1-2). Extension newsletter mailed to 4,500 forest landowners and natural resources professionals in Maryland.

Schultz, V. M., & J. S. Kays. (1998, Winter). Just Say "No" to High-Grading. Branching Out:

Maryland's Forest Stewardship Educator. Vol. 6, No.4, (pp. 1-2). Extension newsletter mailed to 4,500 forest landowners and natural resources professionals in Maryland.

Kays, J. S., G. K. Felton, & E. J. Flamino. (1999, May). Claiming Victory From Spoils. Water, Environment & Technology, (pp. 42-48). Monthly magazine with national distribution to over 29,000 people in the water treatment and biosolids industry. (Submission requested by magazine editor)

Kays, J. S. (1999, Fall). Practical Deer Management Alternatives. The Mountain Grower, (pp. 4-16). West Virginia State Horticultural Society. Bimonthly publication of the West Virginia State Horticultural Society. (Submission requested by magazine editor)

Kays, J. S., & V. M. Schultz. (2000, Winter). Economics of Forest Stewardship for Private Landowners. Branching Out: Maryland's Forest Stewardship Educator. Vol. 7, No. 4, (pp. 1-2). Extension newsletter mailed to 4,500 forest landowners and natural resources professionals in Maryland.

Kays, J. S., & V. M. Schultz. (2000, Spring). What Is My Timber Worth? Branching Out: Maryland's Forest Stewardship Educator. Vol. 8, No.1. (pp. 1-2). Extension newsletter mailed to 4,500 forest landowners and natural resources professionals in Maryland. Requested for reprint in *The Crosscut* newsletter of the Maryland Forests Association.

Kays, J. S. (2002, March/April). Gone Fishin'!: Fee Fishing can Bring You Extra Income. Forest Landowner Magazine, Volume 62, Number 2. (pg. 5-9). (Submission requested by magazine editor)

Chamberlain, J, A. L. Hammett, D. Jenkins, & J. S. Kays. (2002, March/April). Greenery: An Opportunity for Forest Landowners. Forest Landowner Magazine, Volume 62, Number 2. (pg. 44-46). (Submission requested by magazine editor)

Talks, Abstracts, and Other Professional Papers Presented

Invited Talks with Published Proceedings:

Kays, J. S., D. W. Smith, & S. M. Zedaker. (1984). Season of Harvest and Site Quality Effects on Hardwood Regeneration in the Virginia Piedmont. In E. Shoulders, (Ed.), Proceedings Third Biennial Southern Silvicultural Research Conference, (pp. 137-145). Atlanta, Georgia.

Kays, J. S., & C. W. Canham. (1987). Effect of Time and Frequency of Cutting on Hardwood Root Reserves [Abstract]. In B. H. Marose, (Ed.), Proceedings of the Northeast Weed Science Society, 41, Supplement, (p. 24). Williamsburg, VA.

Kays, K. R., J. C. McAnich, C. W. Canham, & J. S. Kays. (1987). Patterns of Deer Browsing Along Utility Rights-Of-Way in Southeastern New York [Abstract]. In B. H. Marose, (Ed.), Proceedings Northeast Weed Science Society, Vol. 41, Supplement, (p. 20). Williamsburg, VA.

Kays, J. S., & S. M. Bogash. (1995). Increasing Profitability of Home-Based Alternative Enterprises that Utilize Natural Resources. In Proceedings of Second National Home-Based Business Conference: Choices, Challenges and Changes, Lincoln, NE.

Kays, J. S. (1995). Deer Protection for Small Forest Plantations: Comparing Costs of Tree Shelters, Electric Fencing and Repellents. In J. C. Brissette, (Ed.), Proceedings of the Tree Shelter Conference, (pp. 5-12). Harrisburg, PA. USDA Forest Service General Technical Report NE-221,

Kays, J. S., & D. W. Tregoning. (1995). From Deer Problem to People Solution: A Case Study from Montgomery County, Maryland. In J. B. Armstrong, (Ed.), Proceedings of the Seventh Eastern Wildlife Damage Management Conference, (pp. 64-76). Jackson, MS.

- Kays, J. S. (1995). Improving the Success of Alternative Income Enterprises that Utilize Natural Resources. Annual Meeting of Canadian Woodlot Extension Specialists. Causapasal, Quebec, Canada. (Invited by Canadian organization to speak and interact with a group of 32 Extension specialists on how to improve their outreach programs.
- Kays, J. S. (1995). Enhancing Wildlife Habitat Using Sound Forest Management [Abstract]. In Wildlands Conference Workbook; Risk, Regulations, and Resolution: Creating the Process, Wildlife Habitat Council, (pp. 35-36). Dearborn, MI.
- Kays, J. S. (1995). Crop Tree Demonstration Area [Abstract]. In Western Maryland Ag Field Day Proceedings. Keedysville, MD: Maryland Cooperative Extension.
- Kays, J. S. (1995). Managing Deer Damage Using an Integrated Pest Management Approach. In Wildlife, Environment, and Business Symposium Workbook, (pp. 7-8). Washington, D.C.: Wildlife Habitat Council.
- Kays, J. S. (1995). Improving Success of Alternative Enterprises [Abstract]. In Southern Maryland Crops Conference Proceedings. (pp. 2-2a). Waldorf, MD: UMCP, MCE.
- Kays, J. S. (1996). Education and Economics: A Model to Improve the Success of Natural Resources Income Opportunities. In R. Johnson, (Ed.), Economics of Wildlife Resources on Private Lands, (pp. 40-48). Auburn, AL: Auburn University.
- Kays, J. S. (1996). Integrating Natural Resources into Farm Management. Natural Resources and Environmental Management In-Service Training for the Northeast States. Camelback, PA. (Selected by Extension peers in the Northeast as an example of a quality Extension program worth highlighting at this conference. Program results presented to 38 Northeast Extension professionals.)
- Kays, J. S. (1997). Reaching the Woodland Owner. In B. Hanson & G. Goff, (Eds.), Proceedings of the Coverts Cooperator Symposium II, June 6-8, 1997, Frost Valley, NY: Coverts Regional Committee.
- Kays, J. S., E. J. Flamino, G. K. Felton, & P. D. Flamino. (1997). Use of Deep-Row Biosolids Applications to Grow Forest Trees: A Case Study. In Preliminary Proceedings of the International Symposium on the Use of Residuals as Soil Amendments in Forest Ecosystems. (pp. 69-73). Seattle, WA: University of Washington. Published later in peer-reviewed proceedings.
- Kays, J. S., & D. B. Hill. (1997). Improving Success of Natural Resources Income Enterprises [Abstract]. In Galaxy Summit Conference Proceedings, October 12-16, 1997. Cincinnati, OH. Joint meeting of different national Extension associations to share programs and ideas. Developed and co-presented with D. B. Hill, Extension Forester with Kentucky Cooperative Extension.
- Kays, J. S. (1997). Deer Damage Management for Individuals. In B.L. Gardner, (Ed.), Deer as Public Good and Public Nuisance: Issues and Policy Options in Maryland. (pp. 41-51). College Park, MD: UMCP Center for Agriculture and Natural Resources Policy.
- Kays, J. S. (1999). Decisions..Decisions..Decisions: Considerations for Starting a Natural Resources-Based Enterprise. In S. Josiah (Ed.), Proceedings of the North American Conference on Enterprise Development Through Agroforestry: Farming the Agroforest for Specialty Products, (pp. 161-162). October 4-7, 1998. Minneapolis, MN: University of Minnesota.
- Kays, J. S. (1999). Improving the Success of Natural Resources-Based Enterprises. In S. Josiah (Ed.), Proceedings of the North American Conference on Enterprise Development Through Agroforestry: Farming the Agroforest for Specialty Products, (pp. 163-170). October 4-7, 1998. Minneapolis, Minnesota: University of Minnesota.
- Kays, J. S. (1999). Practical Deer Management Alternatives. In Proceedings of the 1999 Annual West Virginia/Virginia Horticultural Society Conference, January 11-13, 1999. Roanoke, VA: WV/VA

Horticultural Society.

Kays, J. S. (1999). Deep-Row Application of Biosolids to Grow Forest Crops on Mine Spoils: Potential Utilization for the Baltimore, MD - Washington, D.C. Metro Area. In Proceedings of the Water Environment Federation/Association of Wastewater Operators Joint Residuals and Biosolids Management Conference. January 27-30, 1999. Charlotte, NC: Water Environment Research Federation.

Kays, J. S. (1999). Unique Agroforestry System Combining Deep-Row Applications of Biosolids, Forest Crops, and Reclamation of Mine Spoils: Real and Potential Applications [Abstract]. In Proceedings of the 1999 Society of American Foresters Annual Meeting, September 11-15, 1999. Portland, OR: Society of American Foresters.

Kays, J. S. (2000). Guide to Evaluating and Choosing a Natural Resources-Based Enterprise. In Proceedings of a Northeast Regional Satellite Videoconference on Economic Aspects of Forest Stewardship, (pp. 1-16). April 15, 2000. Ithaca, NY: Cornell Cooperative Extension. (Satellite videoconference downlinked to 59 sites in the NE United States.)

Kays, J. S. (2000). Developing Decision Making Tools for Landowners Seeking Guidance on Integrating Natural Resources and Agricultural Income Opportunities [Abstract]. In Proceedings of the Second National Extension Natural Resources Conference, (pg. 48). May 16-18, 2000. South Lake Tahoe, NV.

Kays, J. S. (2001). Interactions of Hunters and Landowners: Working Together to Provide Management Services and Recreational Opportunities. In Proceedings of a Northeast Regional Satellite Videoconference on Deer in Rural Woodland. April 21, 2001. Ithaca, NY: Cornell Cooperative Extension. (Satellite videoconference downlinked in the NE United States.)

Kays, J. S. (2002). Information Needs for Natural Resource Income Opportunities for Agricultural Extension Agents and Professional Foresters in the Mid-Atlantic Region [Abstract]. In Proceedings of the Third National Extension Natural Resources Conference, (pg. 38). June 2-5, 2002. Naples, Florida.

Kays, J. S. (2003). Natural Resource Income Opportunities: Information and Education Needs of Agricultural Extension Agents and Professional Foresters in the Mid-Atlantic Region. In Proceedings of the First National Symposium on Sustainable Natural Resource-Based Alternative Enterprises for Private Landowners. (pp. 126-146). Mississippi State University, MS: Mississippi State University Cooperative Extension.

Kays, J. S. (2003). Guide to Evaluating and Choosing a Natural Resource Based Enterprise. In Proceedings of Managing Woodland for Recreational Enterprises Conference, (pp. 3-18). December 6, 2003. Fairlee, VT: University of Vermont Extension.

Kays, J. S. (2003). Interactions of Hunters and Landowners: Working Together to Provide Management Services and Recreational Opportunities. In Proceedings of Managing Woodland for Recreational Enterprises Conference, (pp. 53-69). December 6, 2003. Fairlee, VT: University of Vermont Extension.

Kays, J. S., J. Finley, & A. Downing. (2004). Backyard Forest*A* Syst. [Abstract]. In Proceedings of the Fourth National Extension Natural Resources Conference, May 16-19, 2004, Wheeling, WV.

Kays, J. S., (2005). Creating an Income Enterprise That Rewards, But Does Not Punish. [Abstract]. In Proceedings of the Society of American Foresters Annual Convention, October 19-23, 2005. Fort Worth, TX: Society of American Foresters. (Invited to make presentation to about 90 professional foresters. Presentation in this concurrent session chosen for videotaping. The videotape presentation and powerpoint will be available online for professional foresters to secure category 1 credits).

Invited Talks:

Kays, J. S. (1994). Dollars From Woodlots: Profitability and Stewardship. West Virginia Direct Marketing Conference. Harpers Ferry, WV: West Virginia Direct Marketing Association. (Presentation to 15 craft and agricultural producers.)

Kays, J. S. (1994). Lessons Learned About Early Plantation Establishment. Annual Meeting American Paulownia Association. Hagerstown, MD: American Paulownia Association. (Presentation to 65 paulownia growers.)

Kays, J. S. (1998). Managing Deer and Groundhog Damage. Annual Meeting of Shenandoah Valley Nurseryman and Greenhouse Association. Middletown, VA: Shenandoah Valley Nurseryman and Greenhouse Association. (Presentation to 125 nursery and greenhouse growers.)

Kays, J. S. (1998). Managing Deer and Groundhog Damage. Annual Meeting of Virginia Fruit Growers. Winchester, VA: Virginia Fruit Growers. (Presentation to 100 fruit growers)

Kays, J. S. (1998). Understanding Forestry Practices. Baltimore County Council Special Session on Forest Practices. Baltimore, MD. (Invited by Baltimore County Councilman and various forestry organizations to be one of 6 members of a special panel to address forest practices and regulations in the county to an audience of about 30 local leaders. Brought on by a widely-criticized forest harvest on private land. Evaluations from participants indicated specialist comments helped diffuse the situation.)

Kays, J. S. (1998). Using Natural Resources Program to Improve Collaborations in Extension. New Jersey Annual Extension Conference. Stokes State Forest, NJ: Rutgers Cooperative Extension. (Invited by New Jersey State Extension Director to make a 30-minute presentation on natural resource Extension programs to 150 participants at the annual Extension conference.)

Kays, J. S. (1999). Extension Natural Resources: Getting Research-Based Information to Those That Need It. Appalachian Lab Seminar Series. Frostburg, MD: UM Appalachian Lab. (Invited by the Appalachian Lab Seminar Committee to make a one-hour presentation to 25 faculty and students.)

Kays, J. S. (1999). Economics of Forestry for the Private Landowner. Annual Mid-Atlantic Forest Stewardship Seminar. Frederick, MD: UMCP, MCE. (Keynote address to 175 forest landowners at regional forest stewardship seminar).

Kays, J. S. (2000). Cost-Effective Uses for Biosolids Utilizing Hybrid Poplars. 4th Annual Meeting of the Maryland's Tributary Teams. Linthicum Heights, MD: Maryland Department of Agriculture. (Presentation to 17 participants that included legislative delegates.)

Kays, J. S. (2000). Principles and Concepts of Forest and Wildlife Management. Return Your Property into a Wildlife Oasis. February 12 & 13, 2000. Thurmont, MD: WindStar Wildlife Institute. (Presentation to 30 workshop participants was professionally videotaped and recorded to be a component of an online Internet course now available and marketed by WindStar Wildlife Institute, a non-profit backyard wildlife organization, www.windstar.org)

Kays, J. S. (2000). Incorporating Forest Stewardship into Conservation Easements. Mid-Atlantic Land Trust Conference. Shepherdstown, WV: Maryland Environmental Trust. (Invited as one of three panel speakers in 2-hour forum.)

Kays, J. S. (2001). Alternative Natural Resource Income Opportunities for Forest Landowners. National Tree Farm Convention. Hershey, PA: American Forest Council. (Two separate presentations to approximately 90 landowners.)

Kays, J. S. (2003) Deep Row Application of Biosolids Using Forest Trees. Conference on Research

Opportunities for Collaborations in the Appalachians. Frostburg, MD: UMCES. (Presentation to 50 college faculty)

Kays, J. S. (2003). Biosolids, Trees, and Reclamation. Annual Meeting of MD Assoc. Soil Conservation Districts. Deep Creek Lake, MD: MASCD. Presentation to 75 professionals)

Kays, J. S. (2003). (2003) Understanding Deep Row Application of Biosolids Using Hybrid Poplar Trees, Water Environment Federation National Conference. Baltimore, MD: WEF. (Invited to speak to 25 attendees)

Kays, J. S. (2003). Principles of Sustainable Forest Management. Annual Meeting of MD Recreation & Parks Association. Ocean City, MD: MARPA. (30-minute presentation to park managers)

Kays, J. S. (2003). Sustainable Forest Management Principles for Public Parks. Special Meeting of MD Assoc. of Recreation and Parks. Annapolis, MD: MARPA, DNR. Invited presentation by Secretary of DNR targeted to 25 high level state and county park administrators.

Kays, J. S. (2001-2006). Improving Collaborations Between US Fish & Wildlife Service (USFWS) Employees and Cooperative Extension in Your Area. New Employee Orientation for USFWS Employees. Shepherdstown, WV: USFWS, MCE. Invited by US Fish & Wildlife Service to make presentation to new US Fish & Wildlife Service employees from around the country about Cooperative Extension at the national level and how they can benefit from developing local collaborations. Program usually provided twice per year.

Kays, J. S. (2004). Managing Deer in the Landscape. 2004 Northeast Regional Master Gardener Conference. Baltimore, MD: UMCP, MCE, Master Gardeners. (Invited to present two 2-Hour workshops to 30 master gardeners from throughout the northeast states)

Kays, J. S. (2004). MCE and Rural Enterprise Development. 2004 Rural Maryland Summit. Solomon's Island, MD: Rural Maryland Council. Invited presentation as part of a panel for about 50 rural development professionals and other municipal officials

Kays, J. S. (2005) Center of Excellence: A Focus on Rural Enterprise and Land Stewardship. MCE Administrative Meeting. College Park, MD: MCE. Invited to make 30-minute presentation to MCE Administrative Council to share Center concept developed during recent sabbatical.

Kays, J. S. (2004, 2005). Reaching Small Acreage Forest Landowners Through Backyard Forest**A**Syst Curriculum. Forests For the Bay Workgroup. Annapolis, MD: US FWS. Presentation to 20 professionals from forest and conservation groups in the Chesapeake Bay states known as a Forests for the Bay on status of project. Two separate presentation made at request of group. Presentation resulted in \$12,000 of unsolicited support from Virginia Department of Forestry.

Kays, J. S. (2005). Evaluating and Choosing Natural Resource-Based Enterprises. 2005 Forest Landowner's Conference. Columbus, OH: Rural Action, Inc. (Invited to present a 1.5 hour workshop to forest landowners at forest landowner conference in southeast Ohio)

Kays, J. S. (2005). First Step: Evaluating and Choosing Natural Resource-Based Enterprises. Timber to Truffles Conference. Glenntown, WV: West Virginia Cooperative Extension. (Invited to present 1 hour presentation to mixed forest landowner and forestry professional audience at two-day conference)

Kays, J. S. (2005). Experience with Deep Row Incorporation of Biosolids for Hybrid Poplar Plantations. Biosolids Research Symposium 2005. Washington, D.C.: Mid-Atlantic Biosolids Association (MABA). (Invited to present research to industry, regulators and academics at regional conference. Powerpoint presentation provided online at MABA website.)

Kays, J. S. (2005). Center of Excellence: Focus on Rural Enterprise and Land Stewardship.

Agricultural & Natural Resources Agent In-Service. Bowie, MD: UMCP, MCE. (Invited to provide 45-minute presentation on ideas for a center of excellence resulting from recent sabbatical).

Kays, J. S. (2005). Managing Deer Damage. Professional Pest Manager's School. Grantsville, PA: Penn State Cooperative Extension. (Invited to make 1 hour presentation to over 50 professional pest managers)

Kays, J. S. (2006). Increasing Your Income From Timber. Chicago Farmers Farmland Investment Fair. Joliet, IL: Chicago Farmers Association. (Invited to make two 1-hour presentations to over 50 farmers, investors, and others at the exhibition attended by 400 people. Presentation and forestry CD requested by three people for use in Illinois Forest Development Association, Illinois Forest Service, and Joliet College Agricultural Education program).

Kays, J. S. (2006). Understanding the Land Grant University and Cooperative Extension. US Fish & Wildlife Service New Employee Training. Shepherdstown, WV: US Fish & Wildlife Service. (Invited about twice each year to participate on Partner Panel with forest industry and non-profit organization representatives to help new employees from around the country understand our organization and how we can better partner.)

Tapes

Extension Videotapes & CD's:

Kays, J. S., & M. Stewart (Joint production and editing). (1994). Natural Resources Income Opportunities [Videotape]. College Park, MD: UMCP, MCE. 24-minutes. Targeted to potential small entrepreneurs considering various natural resources-based income opportunities. Interviews address lifestyles, marketing, business and financial considerations. Authors wrote, edited the script, located and shot interviews, edited videotape, and marketed final tape. Interview location assistance: R. L. Tjaden. Over 120 copies sold.

Kays, J. S. (Presenter). (1997). Controlling Deer Damage in the Landscape. [Videotape]. Rockville, MD: City of Rockville. Requested by City of Rockville to videotape one-hour deer damage presentation by agent. Tape was played on Rockville Cable channel 2 times per day for 3 weeks, and thereafter on an occasional basis.

Kays, J. S. (2003, revised 2004). Managing Deer Damage in Maryland CD. CD includes 150-slide digital presentation and other publications and web resources for use by master gardener coordinators as an educational tool. Also provided to 50 participants at Community Based Deer Management Workshop in March 2004 with the addition of workshop presentations.

Kays, J. S. (2004, revised 2005). Forestry Short Course CD. CD includes presentation materials for a 7-week forestry short course that was piloted in early 2004. Provides marketing materials and all documents. Distributed over 150 copies to forest landowners who attended short course, state and private foresters, covert cooperators, and extension professionals in other states.

Kays, J. S. (2004 & 2005). Biosolids, Forestry, & Reclamation CD: Current Research Results of Deep Row Biosolids Application and Forestry. CD includes all presentations from October 12, 2004 & October 11, 2005 field day workshops. Powerpoints, reports, and documents with a autorun home page explaining the program. Provided to project partners and other interested parties.

Exhibits and Demonstrations

Extension Exhibits:

Kays, J. S. (1990, Revised 1995, 1996, 1998). Coverts Project in Maryland. Keedysville, MD: UMCP, MCE. 10 photographs with narrative on four-panel tabletop display to interest potential volunteers for forest wildlife training program. (Used by volunteers at fairs & workshops about 5 times per year)

MacLachlan, W. Y., J. S. Kays, & D. W. Tregoning. (2000). Integrated Pest Management Approach for Deer Damage. Ellicott City, MD: UMCP, MCE. Ten digital slides converted to display sheets for use with four-panel tabletop display to educate visitors about managing deer damage at the Central Maryland Agricultural Field Day on June 10, 2000.

Extension Demonstrations and Applied Research:

Kays, J. S. (1990). Growth and Survival of Hardwood and Pine Species With and Without Tree Shelters. Keedysville, MD: UMCP, MCE. Demonstration planting used as a component of educational programs with eight visiting groups to show applications of tree shelters and their limitations for reforesting agricultural fields.

Kays, J. S. (1992). Deer Fencing Demonstration Area. Keedysville, MD: UMCP, MCE. Installed by KIWI fencing company in conjunction with deer workshop

Kays, J. S. (1992). Spider Deer Fencing Demonstration Area. Beltsville, MD: UMCP, MCE. Spider fence is a lower cost deer fencing system unknown to many producers. Installation of a spider fence was completed by KIWI fencing company on a 5-acre field at Beltsville Agricultural Experiment Station. The fence was used in conjunction with a deer workshop to demonstrate this new fencing system.

Kays, J. S. (1994). Crop Tree Demonstration Area. Keedysville, MD: UMCP, MCE. Crop-tree harvesting practice implemented on 1.5-acre forested area to demonstrate application of technique. Diameter growth on 20 crop trees measured each year. Demonstration area used for Coverts Program training seminars, field day tours, and Science on the Cutting Edge workshop.

Kays, J. S. (1995). Protecting Forest Plantations from Deer with Baited Polywire/Polytape Fence. Ellicott City, MD: Howard County Conservancy-Mount Pleasant Farm. Cooperative project with owners of farm to install baited polywire fence around three separate forest plantations for a total of 24-acres. Objective was to identify factors that determine maximum plantation acreage that can be protected using this type of low-cost fencing system on a year-round basis.

Kays, J. S. (1995). Protecting Forest Plantations from Deer with Baited Polywire/Polytape Fence. Sunshine, MD: Washington Suburban Sanitary Commission. Cooperative project with sanitary commission to install baited polytape fence around two separate forest plantations for a total of 25-acres. Objective was to identify factors that determine maximum acreage that can be protected using this type of low-cost fencing system on a year-round basis.

Kays, J. S., & F. R. Gouin. (1995). Survival, Growth, and Nutrient Uptake of *Paulownia* on a Biosolid Amended Gravel-Mined Area. Glen Burnie, MD: ERCO, Inc. Biosolids are composted sewage that has large amounts of usable nutrients. This cooperative project with owners of a reclaimed gravel mine (ERCO, Inc.) planted 1,200 paulownia seedlings at four different spacings. Results of foliar samples combined with survival and growth data was used to determine potential of these sites for paulownia production.

Kays, J. S. (1996). Effectiveness of Off-Limits Crop Protection System to Exclude Deer from Crop Areas. Baltimore, MD: Edrich Farms Nursery. Cooperative project with Invisible Fence Company, Inc. and nursery producer. Project tested the effectiveness of dogs contained by buried electric fencing. \$6,300 contributed by fencing company and nursery grower. Estimated annual damage of \$37,000 was reduced to about zero by use of fencing system. Site used for educational workshop.

Kays, J. S. (1996). Establishing a Schoolyard Wildlife Habitat Area. Fairplay, MD: Fountain Rock Elementary School. Cooperative project with two school teachers to write a \$700 grant, procure trees for planting, and organize a tree planting for 350 elementary school students on a one-acre area on school grounds. Area used by teachers and students for environmental education activities.

Kays, J. S. (1998). Survival and Growth of Hardwood Seedlings on a Biosolid Amended Gravel-Mined Area. Glen Burnie, MD: ERCO, Inc. Cooperative project with owner of reclaimed gravel mine (ERCO, Inc.) to plant 800 seedlings of three native hardwoods: sweetgum, yellow-poplar, and American sycamore. The survival & growth of the native species was compared with that of hybrid poplar, the species used in this operation. Two-year results found American sycamore was the only species that survived the severe growing conditions, but height growth was only half of hybrid poplar.

Kays, J. S. (1998). Effect of Tree Density on Growth of Hybrid Poplar Seedlings. Glen Burnie, MD: ERCO, Inc. Trees in a newly-planted hybrid poplar plantation were chemically-thinned to three spacings in fall, 1998: 1,210 trees per acre (6 X 6-foot), 726 trees per acre (6 X 10-foot), and 484 trees per acre (6 X 15-foot). Growth and production has been followed. The wider spacing (484 trees per acre) has resulted in superior height and diameter growth.

McDill, M., J. Finley, & J. S. Kays. (1998). Promoting Ecotourism on Private Lands. State College, PA: Penn State University. Cooperated with principal investigators from Penn State to provide support for graduate student to determine barriers and needs to ecotourism development in Garrett and Allegany Counties in Maryland & Somerset and Bedford Counties in Pennsylvania. Provided contact information and insights for overall study.

E. J. Flamino, J. S. Kays, & M. Van Ham. (1999). Growth and Survival of 12 Hybrid Poplar Clones on a Biosolid Amended Gravel-Mined Area. Glen Burnie, MD: ERCO, Inc. Cooperative project with owners of ERCO, Inc and M. Van Ham of Sylvis Environmental from British Columbia, Canada, to plant different clones of hybrid poplar to document their growth and survival. Hybrid poplar clone OP367 was superior to clone used previously, and is now used in all operational planting.

Tregoning, D. W., & J. S. Kays. (1999). Efficacy of Deer Repellents at Suburban Parks and Homesites in Maryland. Derwood, MD: UMCP, MCE. Yew bushes were located at three suburban locations in Montgomery County, MD, with high deer pressure. Five repellent treatments and a control were applied in mid-January 2000. Digital photography was used to assess browsing each week. After 13 weeks the controls had 68% loss of vegetation and the repellents had an average of 20% loss. Results incorporated into publications and educational programs.

Tregoning, D. W., & J. S. Kays. (2000). Efficacy of Deer Repellents at Suburban Parks and Homesites in Maryland. Derwood, MD: UMCP, MCE. Two-gallon azalea bushes were located at three suburban locations in Montgomery County, MD, with high deer pressure, Same design as above.

Kays, J. S., & H. Sharew. (2001). Impact of Rodenticides on Vole Populations in Young Forest Plantations. Frederick, MD: UMCP, MCE, DNR Forest Service. Four treatments were applied to young tree plantations to determine proper monitoring and rodenticide treatments needed to control voles. Results shared at professional workshops & in peer reviewed paper co-authored by specialist.

Kays, J. S. & E. J. Flamino. (2004). Effect of Vegetation Management and Phosphorous Fertilization on Growth and Survival of Hybrid Poplar Using Deep Row Biosolid Application. Glen Burnie, MD: ERCO, Inc. Four treatments were applied to replicated plots in 4 year old trees and on a newly planted site in Spring 2004. Growth and foliar nutrient levels assessed. Results used to improve operational efficiency of hybrid poplar on gravel spoils.

Tregoning, D. & J. S. Kays. (2005). Efficacy of Deer Repellent Sachets in the Reduction of Deer Browsing on Yew Shrubs. Derwood, MD: UMCP, MCE, Plato Corporation. Four treatments were applied to four replicated of three-gallon yew shrubs on two different sites to determine efficacy of deer

saches, Deer-Away spray deer repellent compared to untreated controls. Experiment continued from 11/05 to 4/06.

Grants and In-Kind Contributions

Grants – Total: \$1,172,538

Kays, J. S. (1990-1996, 1998-2003, 2005). Coverts Project in Maryland: Creating Forests of Wildlife and Timber. Total funding of \$113,880 provided by The Ruffed Grouse Society, a non-profit wildlife conservation organization. Funds used for annual workshop to train 30 volunteer landowners each year in forest wildlife ecology and management, leadership skills, and outreach.

Kays, J. S., & T. G. Ford. (1993-1998). Improving Success of Alternative Enterprises that Utilize Natural Resources. Total funding of \$160,000. \$130,000 from USDA Rural Development Administration. Competitively awarded grant to fund three-year project to hire an enterprise consultant to work with small and emerging enterprises in forestry, natural resources, and horticulture in the five western Maryland counties. Additional funding of \$30,000 received from Maryland Sea Grant program in 1994 and 1995 to support aquaculture activities of the enterprise consultant.

Kays, J. S. (1993-2000). Forest Stewardship Newsletter. Total funding of \$27,000. \$20,000 provided in 1993 and 1994 from Maryland DNR Forest Service, \$1,000 from MD/DE Society of American Foresters in 1993, and \$6,000 (\$1,000 each year from 1995-2000) from the Maryland Tree Farm Committee. Grant funds have paid for portions of the cost of personnel, equipment, developing, printing and mailing a quarterly four-page forest stewardship newsletter to over 4,500 woodland owners and natural resources professionals in Maryland.

Hanson, R., G. R. Goff, & J. S. Kays. (1996). Second Regional Symposium of Extension Cooperators / Volunteers. \$6,500 from USDA Forest Service State and Private Forestry. Competitive grant awarded to sponsor a northeast regional meeting of landowner volunteers from states with forest/wildlife volunteer programs. Specialist initially solicited the grant and then gave to others to implement the project due to sabbatical leave.

Patrick, T. D., & J. S. Kays. (1996). Wildlife Habitat Naturalist Training Program. \$10,000 from USDA Forest Service State and Private Forestry. Competitive grant awarded to private non-profit Windstar Wildlife Institute with in-kind support from the specialist to develop a landowner training program based on the Coverts Program for suburban homeowners. Specialist assisted T. Patrick with the writing of the grant, planning of the training program, teaching, and evaluation.

McDill, M., J. Finley, & J. S. Kays. (1998). Promoting Ecotourism on Private Lands. \$14,673. Competitive grant from the Northeast Regional Center for Rural Development. Regional cooperated with other Penn State principal investigators to hire graduate student to determine barriers and need for ecotourism development in Garrett and Allegany Counties in Maryland and Somerset and Bedford Counties in Pennsylvania.

Kays, J. S. (1998). Conference on Natural Resources Income Opportunities for Private Lands. \$26,000. This total is composed of three separate grants solicited to support the April 1998 Natural Resources Income Opportunities on Private Lands Conference: 1) Competitive grant for \$17,000 awarded by USDA Forest Service State & Private Forestry program on Rural Development Through Forestry; 2) Competitive grant for \$4,000 awarded by the USDA-CREES small grant program; and 3) Grant for \$5,000 awarded by the USDA Natural Resources Conservation Service.

Kays, J. S., R. F. Heflebower, & G. R. Welsh. (1999). Effectiveness of Dogs Contained with a Buried Electric Fence to Reduce Deer Damage. \$6,122. \$4,122 awarded as part of a special grant program from the Agricultural Experiment Station (AES) to encourage deer damage research on experiment

station farms. \$2,000 in additional funds provided by AES for labor and supplies.

Galloway, D., J. S. Kays, & T. Hammett. (1999). Ginseng Dead-heading: Determining the Effects of Removing Seed-Producing Flowers from Woods-Grown Ginseng Plants. \$2,363. Sustainable Agriculture and Research in Extension (SARE) Farmer Grant. Specialist cooperated with T. Hammett, associate professor at Virginia Tech, to assist grower with development and submission of proposal.

Tjaden, R. L., & J. S. Kays. (2000). Stumpage Price Report. \$10,000. Two-year project funded by Maryland Department of Agriculture, Maryland Department of Natural Resources, Delaware Department of Agriculture, and Maryland Cooperative Extension to survey foresters quarterly and disseminate price report to natural resources professionals and forest landowners. Specialist worked with committee to develop initial survey and report, evaluation, and financial support.

Kays, J. S. & H. Reed. (2000). Natural Resource Income Opportunity Education for Southern Maryland Landowners. \$14,000. Two-year project funded by the Southern Maryland Tobacco Project through a competitive grant process. Grant declined due to circumstances.

Kays, J. S., G. Felton, D. Johnson, & E. Flamino. (2001). Determination of Optimal Tree Density and Biosolid Application Rate and the Effect on Water Quality and Tree Growth Using the Deep Row Biosolids Incorporation Method. \$345,000. Three-year project funded by Washington Suburban Sanitary Commission.

Felton, G. & J. S. Kays. (2004, 2005). Quantifying Nitrogen Fate from Hybrid Poplar Production on Biosolids Incorporated into Deep Rows. \$24,000. McIntire-Stennis grant funds to support additional project activities for deep row incorporation study.

Kays, J. S. (2002-2005). Backyard Forest*A*Syst. \$25,000. Three-year project funded by US Fish and Wildlife Service to develop a curriculum for backyard forestry on less than 10 acres. Includes training and materials for volunteers to deliver program at the county level. In cooperation with Pennsylvania and Virginia Cooperative Extension.

Kays, J. S. (2005). Woods in Your Backyard. \$12,000. Unsolicited funding for two-years from the Virginia Department of Forestry to supplement original funding for Backyard Forest*A*Syst grant above.

Kays, J. S., G. Felton, E. Flamino, & D. Johnson. (2005). Determination of Optimal Tree Density and Biosolid Application Rate and the Effect on Water Quality and Tree Growth Using the Deep Row Biosolids Incorporation Method. \$361,000. Continuing funding for additional research for three-years for project originally started in 2001. Project funded by Washington Suburban Sanitary Commission.

Kays, J. S. (2005). Forest Stewardship Education. \$15,000. Unsolicited funded from the Maryland Department of Natural Resources Forest Service to support extension education in forest stewardship. Part of ongoing MOU that will provide similar level of funding for four years.

In-Kind Contributions - \$25,800

(1992). Demonstration deer fence installations at Western Maryland Research & Education Center and Beltsville Agricultural Experiment Station. KIWI Fencing Company provided materials and labor to install 5-acre spider fence and demonstration fencing area. Estimated cost: \$1,000.

(1995). Protecting forest plantations from deer with baited polywire/polytape fencing. Direct cost of fencing materials for 25-acres estimated at \$7,000.

(1995). Survival, growth, and nutrient uptake of Paulownia on a biosolid amended gravel spoil. Cost to purchase 1,200 paulownia seedlings, prepare the site for planting, and planting labor estimated at

\$3,000.

(1996). Effectiveness of off-limits crop protection system to exclude deer from crop areas. Donation of fencing system by Off-Limits Crop Protection for applied research study in private nursery. Includes installation and purchase of underground wire by Edrich Nursery. Estimated cost \$4,500.

(1996). Establishing a schoolyard wildlife habitat area. \$800 in tree shelters donated by Department of Natural Resources Forest Service for school project.

(1998). Effect of tree density on growth & survival of hybrid poplar seedlings on a biosolid amended gravel spoil. Cost for labor, equipment, and materials to establish four 0.25 acre research plots paid by ERCO, Inc. Estimated cost of \$1,000.

(1998). Survival and growth of four hardwood species on a biosolid amended gravel spoil. Cost for labor, equipment, and materials to plant 800 seedlings of yellow-poplar, sweetgum, sycamore, and hybrid poplar paid by ERCO, Inc. Estimated cost of \$1,000.

(1999). Survival and growth of 12 different hybrid poplar clones on a biosolid amended gravel spoil. All costs for labor, equipment, and materials paid by ERCO, Inc. Estimated cost of \$2,500.

(2005). Using deer repellents to reduce browsing on hybrid poplar trees in large acreage plantings. Liquid Fence Company provided 55 gallons of deer repellent concentrate at no cost for operational application trial. Estimated cost of \$5,000.

Editorships

(1995-1996, mid-1997 to 2002). Regional Editor for the Northeast United States Section. National Woodlands Magazine. Collect and submit information for News from the Regions section that includes educational news from the 12-state Northeastern region. Magazine is a quarterly publication of the National Woodland Owners Association (NOAA), a non-profit nationwide organization of non-industrial private woodland owners with members in all 50 states.

Awards, Prizes, Fellowships

(1983). Xi Sigma Pi. (National Forestry Honor Society). Awarded October 1983 at Virginia Tech to recognize students in forestry and wildlife for outstanding scholastic achievement.

(1991). Second Place Regional Winner of NACAA/RJR Nabisco, Inc. Public Information Awards Program for slide set. Awarded August 1991 at annual meeting of National Agricultural Extension Agents Association.

(1991). Third Place Regional Winner of NACAA/RJR Nabisco, Inc. Public Information Awards Program for feature story. Awarded August 1991 at annual meeting of National Agricultural Extension Agents Association.

(1994). Extension Partner in 4-H Award. Awarded November 1994 at 4-H Natural Resources Committee meeting for service to 4-H in statewide natural resources.

(1995). Outstanding Forestry Communication Award. Honorable mention for video, Natural Resources Income Opportunities, presented jointly by USDA-CSREES and the National Woodland Owners Association. Awarded to candidate in October 1995 at National Extension Foresters Meeting, Portsmouth, NH.

(1996). Natural Resources Environmental Management Flagship Program for the Northeast. Selected by Northeast NREM planning committee as a program of distinction to be presented at the Northeast NREM In-Service Workshop in May 1996 at Tannersville, PA.

(1999). Northeast Region's Epsilon Sigma Phi Regional Distinguished Team Award. Part of 14-member Maryland Team receiving the award for Science on the Cutting Edge Program.

(2003) Bronze Award Web Page for Forest and Wildlife Education by Association of Natural Resource Extension Professionals (ANREP). Awarded May 2004 at Natural Resource Extension Professionals Conference.

(2004) Extension Forester of the Year Award. Unsolicited national award resulting from nominations from national forestry leaders. Presented by Forest Landowners Association. Awarded March 2004 at 63rd Forest Landowners Conference in Point Clear, Alabama.

(2006) University System of Maryland Board of Regents Excellence in Teaching Award. Regents' Faculty Awards publicly recognize distinguished performance on the part of faculty members. This award is the highest honor presented by the Board of Regents to exemplary faculty members. Awarded April 2006.

(2006) Association of Natural Resource Extension Professionals President's Award. Presented by the 2005 President of ANREP at the Natural Resources Extension Professionals Conference in May 2006 for distinguished service to the organization.

Other Scholarly Works

Newsletters:

Kays, J. S., Faculty Extension Assistant & P. B. Townsend. (1993-present). Branching Out: Maryland's Forest Stewardship Educator. (4 pp.). Keedysville, MD: UMCP, MCE. Creator and lead editor of newsletter providing topics, articles, edits, and final approval. The four-page, quarterly newsletter is sent to over 5,500 private forest landowners and natural resources professionals. MDNR Forest Service provides names of new forest landowners. Database used to target direct mail for Extension programs. Faculty Extension Assistants have changed over the years. Many letters and calls are received and changes in address from subscribers demonstrating clientele interest.

Kays, J. S., & Faculty Extension Assistant. (1991-present). Coverts Project Newsletter. Keedysville, MD: UMCP, MCE. Published three to four times per year and distributed to about 200 volunteers and other selected support professionals. Only published once in 2005 due to sabbatical and movement to Email Listerve. Helps to disseminate information on upcoming events, new knowledge, and other support needs. Faculty Extension Assistants have changed over the years.

Promotional Fliers:

Kays, J. S. (1995-2000). Forestry and Wildlife Cooperative Extension Publications Brochure. [Brochure]. Keedysville, MD: UMCP, MCE. (Approximately 1,500 brochures produced annually and distributed to Extension offices and partner organizations)

Kays, J. S. (1990, revised biannually). The Coverts Project in Maryland: A Forest-Wildlife Education Program. [Brochure]. Keedysville, MD: UMCP, MCE. (Approximately 1,500 printed annually. Brochure used in mailings to solicit new volunteers and used by existing volunteers for distribution)

Kays, J. S. (1992, revised 2000). Take the Coverts Quiz. [Brochure]. Keedysville, MD: UMCP, MCE. (Approximately 3,000 printed and used by Coverts Project volunteers in community programs).

4-H Activities:

Kays, J. S. (1990). Trail Guide for Western Maryland 4-H Center Nature Trail. Bittinger, MD: UMCP, MCE. Rewrote and improved existing leaflet. Guide used by campers each summer for environmental camping programs.

Kays, J. S. (1998). Forestry Vest Skillathon Activity. Keedysville, MD: UMCP, MCE. A forester's vest was outfitted with forestry tools that are numbered. A companion activity sheet and references require the participant to determine the use and value of each of the instruments. Used since 1998 at the annual Maryland 4-H Forestry Judging Invitational with pre-high school youth to interest them in 4-H Forestry Judging activities.

Web Sites:

Bilton, K., & J. S. Kays (1999). Coverts Project Web Site. [Internet web site]. Keedysville, MD: UMCP, MCE. Specialist worked with Coverts volunteer, Kathy Bilton, to provide information and direction to develop an initial web site that could disseminate information to the volunteer network and to interest passive users looking for forest & wildlife management information. Site now incorporated into www.naturalresources.umd.edu.

Kays, J. S. Natural Resource Extension webpage. (www.naturalresources.umd.edu). Web page opened in April 2001. The website with 54+ web pages is an integral component of specialists programming. Current postings of Branching Out, price reports, calendar items, and publications. Web statistics from January 2004 to December 2004 are as follows (none for 2005 due to new reporting system development): 437,184 hits (57% increase over 2003) and 75,787 visits (29% increase over 2003). There were 33,517 unique visitors (30% increase over 2003); of which 16% or 5,228 visited more than once.

[Visits" counts the number of times a visitor came to your site. If the visitor is idle longer than the idle-time limit (30 minutes), the analyzer assumes that the visit was voluntarily terminated. If the visitor continues to browse after they reach the idle-time limit, a new visit is counted. "Unique Visitors" are individuals who visited your site during the report period. If someone (determined by ip address) visits more than once, they are counted only the first time they visit.]

Teaching

Instruction of Frederick Community College Credit Class - Adjunct Faculty

Kays, J. S. (1992, 1993, 1995, 1998). Introduction to Wildlife Management. Frederick, MD: Frederick Community College. Approached by Frederick Community College Parks and Recreation Department in 1992 to develop and teach a three credit semester class entitled, "Introduction to Wildlife Management." Selected texts, developed course outline, tests, field trips, and collection of reference materials. Course taught a total of four semesters. Class size approximately 15 students per year. Excellent ratings on teaching evaluations.

Instruction of College of Agriculture & Natural Resources Credit Class - Guest Lecturer

Kratochvil, R. J., et. al. (1998, Fall - 2002). Ecosystem Management. College Park, MD: UMCP. The College of Agriculture and Natural Resources was approached by the Department of Natural Resources (DNR) to develop a class on Ecosystems Management for its staff members. The three-credit class, AGNR 789:A & B for spring and fall semester - Special Topics, was offered starting in Fall 1998. Each semester it is taken by approximately 25-30 DNR professionals from all disciplines. The specialist was asked to teach two classes as part of that course.

- October 1998, 1999, 2000, 2001, 2002. Principles of Forest Ecology. Annapolis, MD. (2.5 hour class)
- February 1999; March 2000, 2001, 2002. Economics of Forest Stewardship. Annapolis, MD. (1 hour class)

McIntosh, M. (Fall of 2002, 2003, 2004, 2005). Introduction to Urban Forestry (NRSC 171). College Park, MD: UMCP. Specialist has been invited as a guest lecturer for one class during each fall semester on “Forest Ecology & Management Principles.”

Extension Courses Organized

Extension Workshops:

Coverts Program Volunteer Training

Kays, J. S. (1990 - Present). Coverts Project Annual Volunteer Training Workshop. A 3.5-day outreach training workshop offered annually for a carefully selected group of 30 forest landowners and others with environmental interests who have been identified as opinion leaders in their communities. A 1-3 day refresher course is offered each spring for past volunteers. A total of 362 individuals have been trained since 1990. This statewide program utilizes indoor and outdoor classroom techniques to teach volunteers how forest management is used to improve wildlife habitat and other forest benefits. Training in communication and outreach skills prepares participants for the return to their communities where they agree to share what they learn with friends, neighbors, and relatives by using their own properties as demonstration areas or through other outreach methods.

(1990 - 1995, 1997 – 2003, 2005). Coverts Volunteer Training Workshop. Washington County, MD: UMCP, MCE. 3.5-day course offered each September to 30 volunteers from throughout the state of Maryland.

Workshop evaluations from 1995, 1997-1999 workshops were summarized. Cooperators reported an average knowledge gain of 2.1 points on a scale of 1 to 5 when comparing knowledge level prior to attending the course and after completion.

(1990 - 1995, 1998 – 2002, 2006). One-day Coverts Refresher. Various locations around Maryland: UMCP, MCE. Workshop for past participants and friends interested in the program to provide continuing education, sharing, and input for future program planning. Refresher course held at a different property or location each spring with average attendance of 30-50 participants.

(2003). Coverts Field Tours Organized by Cooperators. Four cooperators from around the state offered to organize a one-day field tour for local forest landowners instead of refresher course organized by specialist. The total attendance for all four was approximately 140 persons. Field days helped empower cooperators to organize their own events and realize they can be successful.

(1996, May). Coverts Project Refresher Course. Monkton, MD: UMCP, MCE. Three-day refresher course for 19 past volunteers on bio-diversity and forest management, as well as outreach skills.

(1997, April). Coverts Project Refresher Course. Cambridge, MD: UMCP, MCE. Three-day refresher course with bus tour for 40 past volunteers on Maryland’s Eastern Shore forest and wildlife management.

Forest Stewardship

Kays, J. S. (1990 - present). Forest Stewardship Workshops, Seminars, & Short Courses. Private forest landowners, land trusts, and other organizations seek and require educational programming on sound forest stewardship practices. Ongoing regional programs are supplemented with county, multi-county, and targeted programs as needed. Youth programs are implemented to increase knowledge and future leadership capabilities.

Poole, T. E., & J. S. Kays. (1989-2001, November). Mid-Atlantic Forest Stewardship Seminar. Frederick, MD: UMCP, MCE. Annual forest stewardship workshop for forest landowners in western Maryland and the surrounding counties of Pennsylvania, West Virginia, and Virginia. Regularly attracts 100-175 participants. The specialist taught at least one class at each annual workshop. Below is a summarization of the evaluation results from annual programs from 1995 to 2000.

83% of attendees were forest landowners with 81% from Maryland and 19% from surrounding states. Total acreage of attendees was 32,195, which averages 6,439 impacted acres per year.

Kays, J. S. (1993, 1994, 1995). State 4-H Forestry Judging Contest. Three locations around state: UMCP, MCE. Organized volunteers to staff the one-day contest for youth in forestry skills to determine team that will participate in the national invitational. Attended by about 15-25 youth each year.

Kays, J. S., & T. G. Ford. (1993, October). Royal Paulownia Workshop. Westminster, MD: UMCP, MCE. One-day bus tour of paulownia plantations mixed with classroom instruction for 45 forest landowners. Paulownia is a naturalized tree species that is being cultivated due to its high value.

Kays, J. S., & T. Sprangel. (1994, March). Dollars From Woodlots: Stewardship and Profitability. Cumberland, MD: UMCP, MCE. Evening workshop for 20 forest landowners in Allegany County.

Kays, J. S., S. M. Bogash, & J. W. Simms. (1994, October). Dollars From Woodlots: Marketing Forest Products. Friendsville, MD: UMCP, MCE. One-day workshop and field tour for 35 forest landowners.

Kays, J. S., J. Johnson, & B. Davis. (1994, October). Royal Paulownia in the United States: Annual Meeting American Paulownia Association. Hagerstown, MD: UMCP, MCE & Virginia Tech. Two-day conference and field tour organized in cooperation with J. Johnson at Virginia Tech and B. Davis of the American Paulownia Association for 130 growers and resources professionals on production and marketing of paulownia trees.

Kays, J. S., & J. W. Simms. (1998, October). Dollars from Woodlots: Profitability and Stewardship. Bittinger, MD: UMCP, MCE. One-day workshop and field tour targeted to non-resident forest landowners was attended by 25 forest landowners in Garrett and Allegany County.

75% of attendees were non-resident forest landowners. Program given an excellent rating. State forester reported at least three follow-up requests for management information. Consultant forester received request for harvesting assistance on one additional property as a result of the workshop.

W. H. Knepp, J. S. Kays, & J. W. Simms. (2000, April). Dollars from Woodlots: Profitability and Stewardship. Frostburg, MD: UMCP, MCE. Two-hour evening workshop targeted to resident forest landowners was attended by 20 landowners from Garrett and Allegany counties.

Four of the landowners that attended the program sought professional forestry assistance which results in better stewardship of their property.

Kays, J. S., T. E. Poole & D. Almquist. (2004, April-May). Forestry Short Course. Frederick, MD & Forest Hill, MD: UMCP, MCE, MDDNR Forest Service. A six-week forestry short course held

for 2 hours one night a week for 50 forest landowner in Frederick County and 17 forest landowners in Harford County. Each workshop followed by a field tour.

- Teaching materials included a CD with all course materials that were distributed to participants, as well as covert cooperators, state foresters, extension agents, and others in the region. 75% of participants did not have a forest stewardship plan but intended to contact a professional forestry to develop one. Followup meetings with participants in Frederick County resulted in development of a steering committee and organization of the Maryland Woodland Owners Association in 2004.
- Results of 18 month follow up to Frederick County Short Course (15 responses out of 50): On a scale of 1 to 10, participants knowledge about topics taught increased from an average of 2.94 **prior** to the workshop to 7.77 eighteen months **after** the workshop using the scale, 1=no knowledge to 10=much knowledge: Topics included: components & benefits of developing a forest stewardship plan: basics of tree identification, resources available to assist you managing your property, what services different types of foresters provide, improving wildlife habitat on my property, how to properly market forest products, how a woodland owner association can be a benefit to a forest landowner. 43% had contacted a forester for a management plan or plan to soon. 80% had shared information with others (40 in all). 33% have taken advantage of tax relief or cost share opportunities. Respondents indicated they would make or save \$26,800 over the next years as a result of attending the workshop.

Note: Actual evaluation attached to CV

Kays, J. S. & L. Roth. (2005, November-December). Focus Group Testing for Woods in Your Backyard Publications. Clinton, MD & Ellicott City, MD: UMCP, MCE. Two focus group input sessions were held in two locations. Three individuals at Clinton, MD and 20 at Ellicott City. Participants provided materials ahead of time and were queried at focus group meetings using series of preplanned questions. Input used to improve publication and plan how to deliver the materials. Almost all attendees interested in train the trainer program planned for 2006 which will provide vehicle for county based workshop.

Natural Resources Professional Training

Kays, J. S. (1991 - present) Professional Training Workshops in Natural Resources. Cooperation with professional organizations to provide needed educational programming is accomplished on an as-needed basis. These programs improve networking with other organizations and improve the exposure and credibility of University programs. Organizations include the following: Society of American Foresters, Maryland Association of Certified Public Accountants, Maryland Tree Farm Committee, Maryland Forests Association, Maryland Department of Natural Resources, Maryland Association of Forest Industries, Maryland Environmental Trust, and others. MCE has developed a mutual collaboration with the Society of American Foresters to assist in organization and facilitation of professional workshops for foresters.

Kays, J. S., & R. L. Tjaden (1991). Forest and Wildlife Management Opportunities In Maryland. Riverdale, MD: UMCP, MCE. Two-day in-service workshop for 20 Agricultural Science Educators.

Kays, J. S. (1993, May). Tree Identification and the Tree Conservation Act. Oregon Ridge, MD. UMCP, MCE. One-day continuing education workshop for 40 Maryland Surveyors Association.

Kays, J. S., J. Finley, L. Biles, & S. Jones. (1993, December). Congressional Forest Extension Tour for Federal Legislative Aides. Hagerstown, MD: UMCP, MCE. One-day workshop to educate 15 legislative aids about forestry Extension programs.

Kays, J. S. (1995, March). Evaluation of Hazard Trees in Urban Areas. Ellicott City, MD: UMCP, MCE. Hazard trees are trees in urban areas that are likely to fall and harm people or property due to a defect. Half-day workshop and field tour for 16 Home & Garden consultants and other Extension agents taught participants how to identify hazard trees and provide possible

solutions.

Tjaden, R. L., & J. S. Kays. (1998, March). Wildlife Management Applications for Foresters. Beltsville, MD: UMCP, MCE. Workshop organized in cooperation with the Society of American Foresters for continuing education credits. Attended by 65 professional foresters. Continuing Education Credits assigned.

Kays, J. S. (1998, October). Liability Issues for Professional Foresters. Westminster, MD: UMCP, MCE, SAF. Workshop organized in cooperation with the Society of American Foresters for continuing education credits. Attended by 70 professional foresters. Continuing Education Credits assigned.

Kays, J. S., & P. Maslen. (1999, February). Understanding Forest Stewardship and Practice. Crownsville, MD: UMCP, MCE. Three-hour workshop for staff of the Maryland Environmental Trust on incorporating forest management considerations into conservation easements.

Kays, J. S., & N. Williams. (1999, May). Forest Management and Conservation Easements. Crownsville, MD: UMCP, MCE. Workshop organized in cooperation with Maryland Environmental Trust for 40 land trust directors on how to properly incorporate forest practices into conservation easements.

Kays, J. S. (1999, July). Agroforestry Tour for Professionals. Virginia & West Virginia locations: UMCP, MCE. Two-day tour for county Extension educators and Department of Natural Resources foresters to visit two producers utilizing warm season grasses, a unique forest products enterprise in Virginia, an agroforestry research study at Virginia Tech, and an agroforestry research project in West Virginia developed by the USDA-Agricultural Research Service.

Kays, J. S., P. Pannill, & J. Perdue. (1999, September). Green Forest Certification. Hagerstown, MD: UMCP, MCE, MD/DE Society of American Foresters. Workshop organized in cooperation with the Society of American Foresters for 75 professional foresters. Continuing education credits assigned. Green forest certification refers to certification standards that assure forest products are produced using accepted conservation practices.

Kays, J. S., & C. Consolis. (1999 & 2000, November). Timber Taxes for Certified Public Accountants (CPA's). Columbia, MD: UMCP, MCE, & MD Association of Certified Public Accountants. Workshop organized in cooperation with Maryland Association of CPA's for continuing education credits. Attended by 74 CPA's and forest professionals.

Kays, J. S. (2000, October). Silviculture and Professional Forester Ethics. Laurel, MD: UMCP, MCE, MD/DE Society of American Foresters. Workshop organized in cooperation with the Society of American Foresters for continuing education credits. Attended by 50 professional foresters. Continuing Education Credits assigned.

Kays, J. S. & M. Jacobsen. (2000, November). Tour on Natural Resource Income Opportunities for Private Landowners. Hagerstown, MD: UMCP, MCE, Penn State Cooperative Extension, Society of American Foresters. All day bus tour for 30 attendees at Society of American Foresters National Meeting held in Washington, D. C. Visits to natural resource based enterprises.

Kays, J. S. (2001, October). Future of Maryland Forests. Laurel, MD. UMCP, MCE, MD/DE Society of American Foresters. Workshop organized in cooperation with the Society of American Foresters for continuing education credits. Attended by 50 professional foresters. Continuing Education Credits assigned.

Pannill, P., J. S. Kays & K. Jolly. (2002, February). Perpetuating Working Forests in the Rural/Urban Interface. Hagerstown, MD: UMCP, MCE, Allegheny Society of American Foresters. Workshop organized in cooperation with Society of American Foresters for continuing education credits. Attended by 170 professional foresters.

Kays, J. S. & S. Resh (2002, September). Forest Measurements for Natural Resource Professionals. Cumberland, MD. UMCP, MCE, MD/DE Society of American Foresters. Workshop organized in cooperation with the Society of American Foresters for continuing education credits. Attended by 53 professional foresters. Continuing Education Credits assigned.

Kays, J. S. & W. Dorsey (2003, April). Timber Cruising Methods for Natural Resource Professionals. Soldiers Delight, MD. UMCP, MCE, MD/DE Society of American Foresters. Workshop organized in cooperation with the Society of American Foresters for continuing education credits. Attended by 45 professional foresters. Continuing Education Credits assigned.

Kays, J. S. (2003, November). Challenges for Managing Small Woodlands. Sharpsburg, MD. UMCP, MCE, MD/DE Society of American Foresters. Workshop organized in cooperation with the Society of American Foresters for continuing education credits. Attended by 50 professional foresters. Continuing Education Credits assigned.

Kays, J. S. (2003, November). Forestry Cooperatives: What Today's Resource Professionals Need to Know. Keedysville, MD: UMCP, MCE, University of Minnesota Cooperative Extension. National satellite videoconference downlinked to two sites in Maryland for a total of 10 participants.

Olson, J., Kays, J. S. D. VanHassent. (2004, February). The Future of Large Forest Ownerships. Dover, DE: UMCP, MCE, Allegheny Society of American Foresters. Workshop organized in cooperation with Society of American Foresters for continuing education credits. Attended by 200 professional foresters.

Wildlife Damage Management

Kays, J. S. (1991 - present). Wildlife Damage Management Workshops for Professionals, Landowners and Volunteers. Approaches to manage damage by deer and other wildlife to agricultural crops, forests, home landscapes, and humans has been shared with a diverse group of audiences through targeted workshop. This has included state wildlife agency professionals, growers, residential homeowners, and local and state politicians and opinion leaders. Cooperative Extension is recognized as an authoritative source of up-to-date information on deer damage management.

Allnutt, F. J., & J. S. Kays. (1994 - 2001). Western Maryland Research and Education Center Hunter Information Meeting. Keedysville, MD: UMCP, Agricultural Experiment Station (AES) & MCE. Annual program held each September prior to deer hunting season for 125 - 225 hunters to implement controlled hunt program at the Western Maryland Research and Education Center.

Kays, J. S., & R. Kratochvil. (1992, May). Deer Damage Control Workshop. Beltsville, MD: UMCP, MCE. One-day workshop for 60 natural resources professionals.

Kays, J. S. (1992, July). Deer Damage Control Workshop. Keedysville, MD: UMCP, MCE. One-day workshop for 50 natural resources professionals.

Kays, J. S., & R. Kratochvil. (1994, September). Deer Damage Control Workshop. Beltsville, MD: UMCP: MCE One-day workshop for 50 natural resources professionals.

Kays, J. S., & D. W. Tregoning. (1996, April). Public Policy Workshop - The Citizens Task Force Process: A Case Study from Montgomery County. Columbia, MD: UMCP, MCE. A one-hour workshop presented at the 1996 Annual Maryland Cooperative Extension Conference for 12 Extension faculty.

Kays, J. S. (1997, August). Deer Damage Management Workshop: Update for Agricultural Producers and Natural Resources Professionals. One-day workshop for 70 natural resources professionals. Baltimore, MD: UMCP, MCE.

Gardner, B. L., J. S. Kays, D. Hotton, et. al. (1997, October). Deer as Public Goods and Public Nuisance: Issues and Policy Option in Maryland. College Park, MD: UMCP. Organized with the University of Maryland's Center for Agricultural and Natural Resources Policy as a public issues education meeting to better understand deer issues. Targeted solicitation resulted in attendance by over 100 Maryland opinion leaders from government, nonprofit organizations, University, etc.

Kays, J. S., & R. J. Kratochvil. (1998, November). Managing Wildlife Damage on Agricultural Experiment Station Farms. Ellicott City, MD: UMCP, MCE & AES. One-day workshop for Agricultural Experiment Station (AES) farm managers, researchers, and leaders from the Department of Natural Resources, and Natural Resources Conservation Service.

Presentation and discussion of the management of wildlife damage on research farms lead by specialist. Prior to workshop the specialist developed and summarized a survey of all farm managers and researchers to assess attitudes, needs, and suggestions to effectively address the problem. Specialist drafted a policy statement for AES farm managers. Workshop follow-up resulted in acceptance of a deer management policy for AES and a special \$20,000 grant program to implement wildlife damage management on AES farms.

Kays, J. S. (1999, February). Products for Deer Damage Management: Repellents and Fencing. Frederick, MD: UMCP, MCE. One-day workshop for 10 Extension and DNR professionals to visit with deer damage supply company to learn about current products and techniques.

Kays, J. S. (2004, March). Community-Based Deer Management for Decision-Makers. Laurel, MD: UMCP, MCE, MD DNR. One-day workshop for 45 local decision makers from around the state to educate them on developing a community based deer management program for their area. A CD including all presentations and other background material was provided to each participant.

Rural Enterprise Development (Agriculture & Natural Resources)

Kays, J. S. (1991 - present). Natural Resources Income Opportunities for Private Landowners. Natural resource income opportunities refer to a range of enterprise opportunities that can developed by private landowners to increase income from their properties. The enterprises fall into broad areas of forest farming and forest products, recreational access and ecotourism, and alternative agriculture. The demand by clientele and resources professionals for information prompted the organization of county, regional, and national efforts to provide educational information and programming in this area.

Kays, J. S., T. Ford, W. Grafton, et. al. (1991, April). Income Opportunities for Rural Areas (Utilizing Your Natural Resources). Cumberland, MD: UMCP, MCE. One-day workshop for 170 potential entrepreneurs.

Kays, J. S. (1991, October). Producing and Marketing Shiitake Mushrooms. Keedysville, MD. UMCP, MCE. One-day workshop for 80 producers.

Kays, J. S., T. Ford, W. Grafton, et. al. (1992, April). Income Opportunities for Rural Areas (Utilizing Your Natural Resources). Cumberland, MD: UMCP, MCE. One-day workshop for 80 potential entrepreneurs.

Kays, J. S., T. Ford, W. Grafton, et. al. (1993, April). Income Opportunities for Rural Areas (Utilizing Your Natural Resources). Hagerstown, MD: UMCP, MCE. One-day workshop for 70 potential entrepreneurs.

Kays, J. S., & T. G. Ford. (1994, March). Producing and Marketing Shiitake Mushrooms. Westminster, MD. UMCP, MCE. Evening regional workshop for 41 participants.

Kays, J. S., & et. al. (1994, April). Income Opportunities for Rural Areas (Utilizing Your Natural Resources). Cumberland, MD: UMCP, MCE. One-day workshop for 62 potential entrepreneurs.

Kays, J. S. (1994, May). Producing and Marketing Shiitake Mushrooms. Hagerstown, MD: UMCP, MCE. Evening regional workshop for 15 person considering this enterprise.

Kays, J. S., S. M. Bogash, P. B. King & D. Donnelly. (1995, October). Alternative Income Opportunities In-Service Workshop. Annapolis, MD: UMCP, MCE. One-day workshop attended by 17 Extension agents to educate them about alternative income enterprises that utilize agriculture and natural resources.

Kays, J. S., W. N. Grafton, G. R. Goff, P. J. Smallidge, & J. A. Parkhurst. (1998, April). Natural Resources Income Opportunities on Private Lands. Hagerstown, MD: UMCP, MCE. Three-day national conference for 288 landowners and natural resources professionals to provide technical, business and marketing information on natural resources income enterprises related to forestry, wildlife, and recreational access.

Lead development of program with 37 speakers, made conference arrangements, arranged registration, and marketed program and proceedings nationally. Coordinated the compilation, editing, printing, and distribution of the 274-page conference proceedings to make it available for all participants at the conference. Specialist raised \$38,100 from 12 federal & private organizations to defray costs.

Smallidge, P. J., G. R. Goff, J. S. Kays, J. Finley, M. Vodak, & R. Snyder. (2000, April). Economic Aspects of Forest Stewardship: A Northeast Regional Satellite Videoconference. Ithaca, NY. Three-hour satellite videoconference at Cornell University downlinked to 59 sites in 7 states in the Northeast, including Maryland. Specialist was part of program committee and made one of the six major presentations during the event. The program was organized as a follow-up to the Natural Resources Income Opportunities on Private Lands Conference.

Over 500 rural landowners participated in the satellite videoconference. Respondents to the exit survey own or manage approximately 100,000 acres of forestland. Approximately 42% of respondents had never attended an educational program on natural resources. Thirty-seven percent had a written forest management plan and 35% stated a dependence on their property to generate revenue to offset the cost of ownership. 85% indicated a desire to use their property to generate additional income and a willingness to try new management practices to generate that income. Eleven respondents were comfortable estimating their anticipated earnings or savings as a result of the broadcast for a total of \$143,000.

Richards, H., D. Bender, J. S. Kays. (2006, April) Goods From The Woods: Keeping Forestland Profitable Through the Generations. Cumberland, MD. Full-day workshop on forest stewardship practices, techniques, and equipment demonstrations. Specialist part of program committee.

Biosolids, Forest Trees, and Land Reclamation

Kays, J. S. (1995 - present). Use of Biosolids to Grow Forest Trees on Reclaimed Gravel Spoils. State regulators, water treatment industry professionals, professional foresters, farmers, land use professionals, University faculty, and others interested in biosolids issues and land reclamation require new and innovative utilization techniques to deal with the increasing load of biosolids from the Baltimore-Washington metro area. Deep-row application of biosolids to grow forest trees refers to a new technique where biosolids are applied in shallow, wide trenches to abandoned gravel spoils where little vegetation grows. The site is graded and nutrient-demanding trees are planted which utilize the nutrients in the biosolids. The trees are harvested and the site reapplied about every 6 years. The specialist has developed a public/private partnership with a private company in Prince George's County and the Maryland Department of Environment to develop a research and Extension program to disseminate knowledge about this promising technology and make it an acceptable alternative.

Kays, J. S., & E. J. Flamino. (1999, April). Biosolids, Tree Farming, and Reclamation: An

Innovative Beneficial Reuse System. Clinton, MD. UMCP, MCE. One-day workshop and field tour for 40 county, state, and federal regulators, industry professionals, Extension faculty, non-profit organizations (Council of Governments), and others. Objective was to educate attendees about the use of deep-row application of biosolids to grow forest trees as a beneficial reuse system to reclaim gravel spoils.

The workshop helped to alleviate misunderstanding by state regulatory agency professionals regarding the technique. At a regional biosolids meeting held the next month, the state regulatory agency leader acknowledged the value of tree farming to utilize biosolids. Prior to this time this same individual was a vocal opponent of the technique and sought to block permit renewals.

Kays, J. S., A. Hairston-Strang, & E. J. Flamino. (2000, May). Biosolids, Poultry Litter, Tree Farming, and Reclamation: Innovative Beneficial Reuse Forest Systems. Clinton, MD: UMCP, MCE. One-day workshop and field tour for 35 professional foresters and a few municipal waste professionals. Objective was to educate them about the use of waste materials in intensive forest systems.

End-of-program discussions demonstrated that almost all participants had learned about new tree farming and reclamation techniques with which they were previously unfamiliar. Post-program discussions with influential attendees resulted in a follow-up meeting to discuss direct funding for needed research.

Kays, J. S., G. Felton, & E. J. Flamino. (2002, 2003, 2004, & 2005 October). Biosolids, Tree Farming, and Reclamation: An Innovative Beneficial Reuse System. Clinton, MD. UMCP, MCE. One-day workshop and field tour held each year for about 30-40 county, state, and federal regulators, industry professionals, Extension faculty, non-profit organizations (Council of Governments), and others. Objective each year was to educate attendees about the continuing research project on the use of deep-row application of biosolids to grow forest trees as a beneficial reuse system to reclaim gravel spoils.

Presentations:

Coverts Program Volunteer Training

The 12 presentations in this section include about 21 hours of instruction over 3 ½ days. They have been presented in various forms on an annual basis from 1990 through the present, except for 1996 & 2004, at the Coverts Training Workshop in September. Presented to 360 volunteers since 1990, with approximately 25-30 volunteers trained each year. The other presentations that follow were developed exclusively for continuing education training for Coverts volunteers.

(1990 – Present). Introduction and Orientation to Coverts Project. Sharpsburg, MD: UMCP, MCE. 26-slide PP presentation

(1990 - Present). Historical Perspective on Maryland's Forests. Sharpsburg, MD: UMCP, MCE. 80-slide PP presentation.

(1990 – Present). Principles of Forest Succession & Ecology. Sharpsburg, MD: UMCP, MCE. 130-slide PP presentation.

(1990 – Present). Field Exercises in Forestry. Sharpsburg, MD: UMCP, MCE. Four-hour field session to apply classroom principles.

(1990 - Present). Marketing Forest Products. Sharpsburg, MD: UMCP, MCE. 45-slide PP presentation.

(1990 - Present). Setting Objectives for Managing Forest land. Sharpsburg, MD: UMCP, MCE.

70-slide PP set presentation.

(1990 – Present). Field Exercises in Forestry. Sharpsburg, MD: UMCP, MCE. Four-hour field session to apply classroom principles.

(1990 - Present). Resources Available to Forest Owners - Technical Assistance. Sharpsburg, MD: UMCP, MCE. 10-slide PP presentation.

(1990 - Present). Applied Case Studies in Forest Wildlife Management. Sharpsburg, MD: UMCP, MCE. Written case studies developed by specialist for 2-hour small group exercise.

(1990 - Present). Communicating Your Message to Other Landowners Sharpsburg, MD: UMCP, MCE. Presentation usually done with other Cooperators or presenters.

(1990 - Present). What Kinds of Things Can Volunteers Do? Sharpsburg, MD: UMCP, MCE. Facilitated presentation at Coverts Training Workshop to stimulate ideas.

(1990 - Present). Outreach Planning. Sharpsburg, MD: UMCP, MCE. Facilitated process for participants to develop individual and group outreach plans.

Coverts Project Advanced Training

(1996, May). Biodiversity for Farms and Forests: What Does It Mean to Private Landowners? Monkton, MD: UMCP, MCE. Presentation to 19 past Coverts volunteers at Coverts Refresher Course.

(1996, May). Understanding How to Use Maps and Assess Habitat and Biodiversity. Monkton, MD: UMCP, MCE. Presentation to 19 past Coverts volunteers at Coverts Refresher Course.

(1998, May). Tree Identification Basics. Timonium, MD: UMCP, MCE. Presentation to 20 past Covert volunteers at Coverts Refresher Course.

(1999, March). Tree Identification Basics. Odenton, MD: UMCP, MCE. Presentation to 24 past Coverts volunteers at Coverts Refresher Course.

(2000-present). Covert Refresher courses offered each spring on a variety of topics for approximately 30 cooperators each year.

Forest Stewardship

(1994, February). Primer in Forest and Wildlife Management Opportunities. Ellicott City, MD: UMCP, MCE. Presentation to 35 Master Gardeners at the Howard County Master Gardener Training.

(1994, March). Dollars From Woodlots: Profitability and Stewardship. Cumberland, MD: UMCP, MCE. Presentation to 28 private landowners investigating alternative enterprises.

(1994, March). History of Maryland Forests: Past, Present and Future. Cumberland, MD: UMCP, MCE. Presentation to 28 private landowners investigating alternative enterprises at the Dollars from Woodlots Workshop.

(1994, October). Dollars from Woodlots: Marketing Forest Products. Friendsville, MD: UMCP, MCE. Presented to 35 forest landowners at the Dollars From Woodlots Workshop.

(1994, November). Dollars from Woodlots. Hagerstown, MD: UMCP, MCE. Presentation to 18 forest landowners at the Mid-Atlantic Forest Stewardship Seminar.

(1995, April). Dollars from Woodlots. McHenry, MD: UMCP, MCE. Presentation to 15 forest

landowners at the Income Opportunities for Rural Areas Workshop.

(1995, November). Dollars from Woodlots. Frederick, MD: UMCP, MCE. Presentation to 33 forest landowners at the Mid-Atlantic Forest Stewardship Seminar.

(1995, November). Marketing Forest Products. Hunt Valley, MD: UMCP, MCE. Presentation to 55 forest landowners at the Central Maryland Forest Stewardship Seminar.

(1995, January). Coverts Project in Maryland. Annapolis, MD: Maryland Association of Soil Conservation Districts. Presentation to 24 soil conservation district members at the Annual Meeting of Maryland Association of Soil Conservation Districts.

(1995, March). Evaluating Hazard Trees in Urban Areas. Ellicott City, MD: UMCP, MCE. Presentation to 14 horticultural consultants at the Home and Garden Information Center Consultant Training. Consultants provide phone assistance to homeowners and others that call.

(1995, June). Perspectives on Maryland's Forests. Deep Creek Lake, MD: Maryland Association of Assessing Officers Annual Meeting. Presentation to 18 county assessors on tax issues related to current-use assessment for forest management activities on private forests.

(1995, June). Woodlot Improvement Techniques. McHenry, MD: UMCP, MCE. Presentation to 15 potential entrepreneurs interested in developing a custom sawmilling enterprise at Custom Sawmilling Workshop. As a result of the workshop, one participant developed a successful custom sawmilling enterprise.

(1995, November). Opportunities for Dollars From Woodlots. Frederick, MD: UMCP, MCE. Two-hour presentation to 7 small farmers at the Frederick County Small Farm Short Course.

(1996, February). Forest Riparian Buffers on Commercial Forest Lands - An Overview. Annapolis, MD: Chesapeake Bay Program. Invited by 23-member Chesapeake Bay Program Riparian Forest Buffer Panel to provide overview on best management practices that apply to forestry.

(1996, April). 4-H Natural Resources Materials. Hagerstown, MD: UMCP, MCE. Presentation to 25 county 4-H Extension educators on natural resources programs at the Region I, 4-H Meeting.

(1996, June). Use of Tree Shelters, Fencing and Repellents to Protect Black Walnut. Keedysville, MD: Maryland Chapter of the Walnut Council. Presentation to 40 black walnut growers at the Maryland Chapter of the Walnut Council Workshop.

(1997, April). Dollars from Woodlots. Hedgesville, WV: WVU Cooperative Extension. Presentation to 10 potential entrepreneurs at the Annual Tri-State Income Opportunities Meeting.

(1997, May & September). Challenges Facing Wildlife and Their Habitat in the Washington Area. Upper Marlboro, MD: Windstar Wildlife Institute. Presentation made at two different Master Wildlife Habitat Naturalist Volunteer Training Workshops. Presentations made to a total of 66 volunteers being trained to share wildlife habitat information with community members.

(1997, September). Challenges Facing Wildlife and Their Habitat in the Washington Area. Upper Marlboro, MD: Windstar Wildlife Institute. Presentation at the Master Wildlife Habitat Naturalist Volunteer Training Workshop to 33 volunteers being trained to share wildlife habitat information with community members.

(1997, May). Understanding Forest Succession. Upper Marlboro, MD: Windstar Wildlife Institute. Presentation at the Master Wildlife Habitat Naturalist Volunteer Training Workshop to 33 volunteers being trained to share wildlife habitat information with community members.

(1998, March). Wildlife Management Principles for Foresters. Beltsville, MD: MD/DE Society of American Foresters. Presentation at the Wildlife Training for Professional Foresters Workshop to

65 professional foresters with the Maryland/Delaware Society of American Foresters. As a result of this presentation, the Maryland DNR Wildlife Division use it for their own educational outreach efforts.

(1998, May). Managing Hazard Trees in the Landscape. Ellicott City, MD: UMCP, MCE. 2.5-hour presentation at the Home & Garden Training Seminar for 16 horticultural consultants at the Home and Garden Information Center on hazard tree identification and management, which included a short field tour. Participants indicated they feel better able to handle these questions and are aware of the liability concerns their advice may carry.

(1998, June). Forest Practices and Conservation Easements. Crownsville, MD: Maryland Forests Association. Two-hour presentation to 7 members of the Maryland Environmental Trust staff who deal with obtaining and marketing conservation easements. Provided training to explain and encourage the incorporation of forest stewardship practices into long-term easements.

(1998, July). Timber Marketing Basics. Keedysville, MD: UMCP, AES. Presentation to a total of 225 farmers, agricultural industry, University, and agency professionals at the Western Maryland Agricultural Field Day. Series of six 20-minute presentations to wagon tours.

(1999, January). Getting More From Your Timber Sales. Westminster, MD: UMCP, MCE. Presentation to 55 Carroll County farmers on marketing their timber at the Carroll County Winter Farm Meeting. Five requests for follow-up information were received.

(1999, February). History of Forest and Wildlife Management in Maryland. Shepherdstown, WV. Presentation to 30 members of the Potomac Valley Audubon Society.

(1999, May). Incorporating Forest Stewardship Into Conservation Easements. Crownsville, MD: UMCP, MCE, Maryland Environmental Trust. Presentation to 40 land trust directors and managers from Maryland on how to incorporate responsible forestry practices into conservation easements. Resulted in eight follow-up requests for information by land trust directors.

(1999, June). Can Forestry Be Incorporated Into Conservation Easements? Annapolis, MD: MD DNR. Presentation to 20 state and county directors of the Rural Legacy Program on strategies for incorporating forestry practices in conservation easement. Resulted in changes in forestry language of conservation easements used by the Rural Legacy program.

(1999, November). Tree Identification. Frederick, MD: UMCP, MCE. Two one-hour hands-on workshops to 30 forest landowners on tree identification basics at the Mid-Atlantic Forest Stewardship Seminar.

(2001, October). The Road to the Present: How Did We Get Here? Laurel, MD: MD/DE Society of American Foresters. Presentation at Professional Foresters Workshop to 50 professional foresters with the Maryland/Delaware Society of American Foresters.

(2005, April). Chainsaw Safety, Maintenance, and Use Demonstration. Oregon Ridge, MD: Baltimore County Woodland Owners. Field and classroom demonstration for 30 forest landowners.

(2005, August). Chainsaw Safety, Maintenance, and Use Demonstration/Deer Fencing Demonstration. Keedysville, MD: UMCP, MCE. Outdoor demonstration to attendees at Open House at Western Maryland Research & Education Center.

(2005, September). Backyard Forestry Education Opportunities for Master Gardeners. Upper Marlboro, MD: UMCP, MCE. (30-minute presentation to 12 master gardeners at Southern Maryland Master Gardener Conference).

(2005), November). Understanding Landowner Liability and Recreational Access. Frederick, MD: UMCP, MCE. (One-hour presentation to 16 members and visitors of the Maryland Small Farm Cooperative Program).

Wildlife Damage Management

- (1994 - 2004). Managing Deer Damage in the Landscape. Ellicott City & Derwood, MD: UMCP, MCE. One or two-hour presentation made each spring to new class of Howard, Montgomery, Frederick, or St. Maries County Master Gardeners for a total of 20 presentations.
- (1994, February). Controlling Deer and Rodents in the Landscape. Rockville, MD. Presentation to 130 professionals at the Maryland Landscape Contractors Association Annual Meeting.
- (1994, September). Basic Components of a Deer Damage Control Strategy. Beltsville, MD: UMCP, MCE. Presentation to 50 natural resources professionals at the Deer Damage Control Workshop for Natural Resources Professionals held at the Central Maryland Research and Education Center.
- (1994, 1995, 1997-1999, September). Hot Issues for Hunters. Keedysville, MD: UMCP, AES & MCE. Presentation made each year at the Western Maryland Research & Education Center Hunter Information Program to 140 to 225 deer hunters each year.
- (1995, February). Controlling Deer Damage in Fruit Orchards. Winchester, VA: Virginia Cooperative Extension. Presentation to 160 fruit producers at the Northern Virginia Fruit School.
- (1995, February). How to Control Voles, Mice and other Rodents in the Landscape. Hunt Valley, MD: UMCP, MCE. Presented to 40 landscape contractors at the 20th Annual Landscape and Pesticide Recertification Conference.
- (1995, February). Deer Control Options for Homeowners. Ellicott City, MD: UMCP, MCE. Training for 12 horticultural consultants at the Home and Garden Information Center to help them better answer questions from thousands of callers each year.
- (1995, February). Controlling Deer on the Farm. Ellicott City, MD: UMCP, MCE. Presentation to 73 farmers and agricultural professionals at the Howard County Winter Farm Meeting.
- (1995, April). Deer Damage Control for Small Growers: An Integrated Pest Management Approach. Income Opportunities for Rural Areas: Utilizing Your Natural Resources. McHenry, MD: UMCP, MCE. Presented to seven small entrepreneurs having serious problems with deer damage.
- (1995, March). Protecting Forest Plantations from Deer Using Electric Fencing. Lilly Ponds, MD: Maryland Walnut Council. Field presentation to 45 walnut tree growers at the Maryland Walnut Council Field Tour to address deer damage problems.
- (1995, May). Deer Damage Control: An Integrated Pest Management Approach. Wheaton, MD: Montgomery County Parks. Presentation to 30 park naturalists at the Montgomery County Parks Naturalist Staff Professional Training on deer damage management options that they could incorporate into their environmental education programs.
- (1995, August). ABC's of Deer Damage Control. Beltsville, MD: UMCP, AES. Outdoor field tour at Beltsville Agricultural Field Day to 250 farmers and agricultural professionals in six separate presentations.
- (1995, November). Controlling Deer in the Suburban Environment. Wheaton, MD: UMCP, MCE. Presentation to 50 suburban residents at Brookside Gardens Continuing Education Program Series.
- (1995, November). Options for Deer and Vole Protection for Small Forest Plantations. Frederick, MD: UMCP, MCE. Presentation to 33 forest landowners at the Mid-Atlantic Forest Stewardship Seminar on how to address deer and vole problems on their property.

(1995, November). Options for Deer Protection for Small Forest Plantations. Hunt Valley, MD: UMCP, MCE. Presentation to 55 forest landowners at the Central Maryland Forest Stewardship Seminar.

(1996, February). Managing Deer, Geese, and Other Wildlife. Walkersville, MD: UMCP, MCE. Presentation on dealing with wildlife problems to 50 farmers at the Frederick County Winter Farm Meeting.

(1996, February). Managing Deer in Fruit Orchards. Keedysville, MD: UMCP, MCE. Presentation to 70 commercial fruit growers at the Western Maryland Fruit Growers Meeting.

(1996, February). Deer Damage Management for the Farm. Street, MD, UMCP, MCE. Presentation to 50 farmers at the Harford County Winter Farm Meeting.

(1996, April). Landowner Liability and Recreational Access. Germantown, MD: Montgomery County Deer Management Group. Invited to provide an assessment to 12 members on how to develop consensus among various stakeholder groups in the county on how to address the deer problem. Instrumental in encouraging initiation of nationally-recognized deer task force process.

(1997, 1998, 1999). Volunteer Training for Deer Outreach. Derwood and/or Ellicott City, MD: UMCP, MCE. One two-hour in-depth training each year for a select group of 60 Montgomery or Howard County Master Gardeners on integrated pest management for deer. Volunteers taught how to use materials and then developed and delivered presentations to community groups as requested.

(1997, February). Integrated Pest Management for Deer and Landowner Liability. Ellicott City, MD: UMCP, MCE. Presented to 38 Master Gardeners at the Howard County Master Gardener Training.

(1997, August). New Techniques in Deer Damage Management. Baltimore, MD: UMCP, MCE & Edrich Nursery. Deer Damage Management Workshop for Natural Resources Professionals. Presentation to 70 wildlife and forestry professionals and landowners.

(1998, February). Predator Control. Forest Hill, MD: UMCP, MCE. Presentation to 25 county leaders at a Harford County Meeting.

(1998, July). What Educators Need to Know About Deer Damage Management. Frostburg, MD: Maryland Association of Agricultural Teachers. Presentation to 40 vocational agricultural teachers. Part of a Vocational Agriculture Teachers Pesticide Recertification Course.

(1998, December). Managing Voles and Beavers in the Landscape. Rockville, MD: UMCP, MCE. Presentation to 45 professional landscapers at the Montgomery County Pesticide Applicators Recertification Training.

(1999, January). Managing Voles and Beavers in the Landscape. Urbana, MD: UMCP, MCE. Presentation to 240 professional landscapers and nurserymen at the Pest Management Conference.

(2000, April). History of Western Maryland Forests and Forest Management. Frostburg, MD: UMCP, MCE. Presentation to 23 forest landowners at Dollars from Woodlots Evening Workshop in Allegany County.

(2004, October). Protecting Trees from Deer Damage. Lisbon, MD: Walnut Council. (One-hour presentation to 30 forest landowners)

(2004, September & 2005, October). Managing Deer Damage in the Landscape for Master Gardeners. Westminster, MD: UMCP, MCE. (Two-2 hr presentations for 15-20 Carroll County master gardeners)

(2005, May). Applications of Deer Repellents for Forestry. Keedysville, MD: MD-DNR, MCE. (30-minute presentation to 48 MD professional foresters as part of a pesticide recertification).

(2005, October). Protecting Trees from Deer Damage. Lisbon, MD: Walnut Council. (30-minute presentation to 30 forest landowners at private property used for workshop).

(2005, November). Managing Deer Damage in the Landscape for Master Gardeners. Keedysville, MD: UMCP, MCE. (2 hr. presentation for 13 Washington County master gardeners)

Rural Enterprise Development (Agriculture & Natural Resources)

(1994, March). Producing and Marketing Shiitake Mushrooms. Westminster, MD: UMCP, MCE. Presentation to 40 potential producers at the Producing and Marketing Shiitake Mushrooms Workshop.

(1994, April). Income Opportunities for Rural Areas (Utilizing Your Natural Resources). Cumberland, MD: UMCP, MCE. Presentation to 63 potential entrepreneurs at the workshop on Income Opportunities for Rural Areas.

(1994, May). Producing and Marketing Shiitake Mushrooms. Hagerstown, MD: UMCP, MCE. Presentation to 15 potential producers at the Producing and Marketing Shiitake Mushrooms Workshop.

(1996, February). Recreational Access and Landowner Liability. Cockeyville, MD: UMCP, MCE. Presentation to 24 forest landowners at Baltimore County Woodland Owners Workshop.

(1997, April). Developing a Fee Hunting Enterprise. Hedgesville, WV: West Virginia University Extension. Presentation to 8 potential entrepreneurs Annual Tri-State Income Opportunities Meeting.

(1997, November). Landowner Liability and Recreational Access. Frederick, MD: UMCP, MCE. Presentation to 26 forest landowners at the Mid-Atlantic Forest Stewardship Seminar.

(1997, November). Forest Landowners and Deer Damage. Frederick, MD: UMCP, MCE. Presentation 32 forest landowners at the Mid-Atlantic Forest Stewardship Seminar.

(1997, December). Recreational Access and Landowner Liability. White Hall, MD: UMCP, MCE. Presentation to 200 farmers at the Baltimore County Winter Farm Meeting.

(1998, February). Recreational Access and Landowner Liability. Forest Hill, MD: UMCP, MCE. Presentation to 50 farmers at the Harford County Winter Farm Meeting.

(1998, April). Farm-Based Alternative Enterprises Related to Natural Resources. Cumberland, MD: UMCP, MCE. Presented to 20 Extension professionals at the Maryland Cooperative Extension Annual Conference.

(1998, April). Decisions..Decisions..Decisions: Choosing an Alternative Enterprise. Frederick, MD: UMCP, MCE. Two-hour class presented to group of 25 small farmers at the Frederick County Small Farms Cooperative Seminar Series.

(1998, October). Recreational Access and Landowner Liability. Westminster, MD: UMCP, MCE & MD/DE Society of American Foresters. Presentation to 70 professional foresters who are members of the MD/DE Society of American Foresters for continuing education credits.

(1998, October). Decisions..Decisions..Decisions: Choosing an Alternative Enterprise. Forest Hill, MD: UMCP, MCE. Presentation to 8 farmers at the Harford County Small Farmers, Small Acres Program.

(1998, November). Decisions..Decisions..Decisions: Choosing an Alternative Enterprise. Frederick, MD: UMCP, MCE. Presentation to 30 forest landowners at the Mid-Atlantic Forest Stewardship Seminar.

(2000, March). Evaluating and Choosing a Natural Resources-Based Income Enterprise. Oldtown, MD: UMCP, MCE & Town Creek Landowners Association. Presentation to 7 forest landowners in Allegany County.

(2005, March). Natural Resource Income Opportunities for Forest Landowners. Frederick, MD: MCE, Maryland Woodland Owners. Presentation to 35 forest landowners.

(2005, October). Opportunities to Provide Training for Rural Agriculture and Natural Resource Entrepreneurs. Preston County, WV: Garrett-Preston Economic Development Council. Presentation to Council on ideas for training to incorporate into annual conference.

(2006, April). Choosing and Evaluating an Agricultural or Natural Resource-Based Enterprise. Alleghany County, MD: Potomac Conservancy. Presentation to 30 landowners.

(2006, May). Natural Resource Enterprise/Income Opportunities on the Farm. Two 2-hour evening sessions on entrepreneurship and development of enterprise skills through hands-on application. Co-taught with Farm Management Specialist, Dale Johnson.

Biosolids, Forest Trees, and Land Reclamation

(1999, January). Understanding Deep-Row Application With Forest Trees. Washington, D.C.: Chesapeake Water Environment Association. Presentation to 25 representatives of regional waste treatment facilities and state and federal regulators to help them better understand the technique.

(1999, March). Agroforestry, Reclamation, and Biosolids. Cumberland, MD: UMCP, MCE. Presentation to 17 Extension professionals at Maryland Cooperative Extension Annual Conference.

(1999, April). Deep-Row Biosolid Applications With Forest Trees. Clinton, MD: UMCP, MCE & ERCO, Inc. Classroom presentation and 2-hour field tour to 40 University, industry, and agency professionals about this innovative utilization technique at the workshop on Biosolids, Tree Farming, and Reclamation: An Innovative Beneficial Reuse System

(2000, May). Deep-Row Application of Biosolids to Grow Forest Trees. Clinton, MD: UMCP, MCE & ERCO, Inc. Classroom presentation and 2-hour field tour for 40 professional foresters at the MD/DE Society of American Foresters Spring Meeting.

(2002, 2003, & 2004, October). Partnerships for the Bay: Field Day to Demonstrate the Benifical Use of Biosolids to Grow Forest Trees. Clinton, MD: UMCP, MCE & ERCO, Inc. Two classroom presentations totaling 1-1.5 hours, as well as a 2-hour field tour to 30-45 University, industry, and agency professionals each year about current research on this innovative utilization technique at the workshop

Youth Natural Resources

(1996, March). Improving Schoolyard Wildlife Habitat. Fairplay, MD: Fountain Rock Elementary School. Presentation to 350 youth at a school assembly on wildlife habitat management.

(1998, February). Managing Natural Resources in the Landscape. Keedysville, MD: UMCP, AGNR. Developed and delivered two classes at the Science on the Cutting Edge Workshop. Presentation to 30 high school youth interested in natural resources management who were selected to attend through a special grant program.

(1998, April). Introduction to Forest and Wildlife Judging. Hagerstown, MD: UMCP, MCE. Field instruction to 24 youth and adult volunteers on 4-H judging activities at the Washington County 4-H Training Workshop for Youth and Adult Volunteers.

(1998, October). Understanding Forest Management. Keedysville, MD: UMCP, AGNR. Developed and delivered two classes at the Science on the Cutting Edge Workshop. Presentation to 30 high school youth interested in natural resources management.

(2004, November). Learning About Wildlife. Fairplay, MD: UMCP, MCE. (Scavenger Hunt Field exercise for 24 4th graders).

Manuals, Slide Sets, Digital Presentations, and other Contributions to Teaching

Kays, J. S., & R. L. Tjaden. (1989). Forestry and Wildlife 4-H Volunteer Training Manual [Binder]. Resources for volunteers on forestry and wildlife youth programs. Developed for use by 4-H volunteers in their respective counties. 35 copies produced and distributed to Maryland 4-H volunteers and agents..

Kays, J. S., & V. M. Schultz. (1990-2005). Coverts Reference Manual [Binder]. Binder with 6 sections and over 70 publications was compiled by the specialist from many sources. The purpose is to provide Coverts volunteers with adequate information to use as a resource during and after the workshop. 70 copies have been produced every 2 years since 1990.

Kays, J. S. (1991). Coverts Project in Maryland. [Slide set]. 30-slide set with rough script used by Coverts volunteers and candidates to promote program.

Kays, J. S. (1991, revised annually). Past, Present and Future of Maryland's Forests. [Slide set]. 80-slide set with script used two times by private forestry professionals and by Coverts volunteers at least once per year. The presentation was digitized in 1999.

Kays, J. S. (1992). Alternative Income Opportunities Utilizing Natural Resources. [Slide set]. 70-slide set with script used twice by county Extension agents.

Kays, J. S. (1992, revised annually). Controlling Deer Damage in the Landscape. [Slide set]. 60-slide set and script for use by Extension agents.

Region I Estate Planning Committee. (1993-1994). Estate Planning Workbook [Binder]. Workbook compiled each year for a total of almost 400 participants at four estate planning workshops held in Region I over the two-year period. Specialist provided materials for workbook and ideas for overall content.

Bogash, S. M., & J. S. Kays. (1995). Non-Traditional Agriculture/Natural Resources Sourcebook [Binder]. Binders of reference materials distributed to 20 Maryland County Extension Educators at in-service training on October 15, 1995.

Kays, J. S., & D. W. Tregoning. (1995). From Deer Problem to People Solution: A Case Study from Montgomery County, Maryland. [Slide set & script]. 45-slide set with script for use with national presentation that was adapted by one county Extension agent for use with county programs.

Kays, J. S. (1996, revised 1998). Suburban Deer Management. [Slide set & script] 80-slide set with script used by agricultural educators and trained volunteers in Montgomery County to educate lay audiences.

Kays, J. S. (1998). General Wildlife Management Principles. [Slide set]. 78-slide set to explain key wildlife management concepts and practices. Used for training with professional foresters and landowner volunteers. Copied by DNR Wildlife Division and used for their educational outreach efforts.

Kays, J. S. (1999). The Forest in Perpetuity: Managing Forest Restrictions in Conservation Easements. [Digital presentation]. 23-slide digital presentation presented to land trusts and Rural Legacy program contacts. Handout of slides requested by 10 land trusts for further study and possible implementation.

Kays, J. S. (1999). Extension Natural Resources: Getting Information to Those Who Need It. [Digital presentation]. 61-slide digital presentation to faculty and students of UM Appalachian Lab located in Frostburg, MD to educate them about natural resources Extension programs.

Kays, J. S. (1999). Managing Deer Damage in the Landscape. [Digital presentation]. 110-slide digital presentation to Master Gardeners and professional foresters.

Coverts Volunteers & J. S. Kays. (2000). Woods & Critters: Timber, Recreation, Wildlife Habitat, Beauty, and the Environment. [Digital presentation]. 69-slide digital or slide presentation developed by volunteers from the Coverts Project with assistance from the specialist to be used by volunteers.

Advising: Research Direction

Master's Level Graduate Students:

Carrie Buswell, 2002-2006. Gary Felton is major advisor. Specialist serves on graduate committee and in advisory capacity on thesis project. Participated in Thesis defense on May 18, 2006. Defense on May 18, 2006.

Tommy Griffeth, 2004-present. Gary Felton is major advisor. Specialist serves in advisory capacity on thesis project.

Advising: Other Than Research Direction

Extension Program Assistants:

Linda Bittner, 1993 - 1995
Steven Bogash, 1994 - 1997
Anita Schipper Caplan, 1995 - 1996
Vera Mae Schultz, 1997 – 2001
Lori Bittenbender, 2001 – 2004
Kelley Ingalls, 2004
Linda Roth, 2005-2006
Elli Hammond, 2006-present

Extension Activities

Major Successful Programs:

Coverts Program

Need: There are 135,000 private forest landowners in Maryland who own 78% of the forest resources, which provide forest products, wildlife habitat, recreation, open space and other benefits to all Maryland citizens. Only an estimated 10% have a written forest stewardship plan to guide their activities, and fewer than 30% seek the assistance of a professional forester before harvesting timber. Many forest landowners have a greater interest in wildlife rather than timber production, but lack knowledge of how to use harvesting, tree planting, and other management practices to improve wildlife habitat. They also lack knowledge concerning whom to contact for assistance and they may be suspicious of government agencies. However, many will value advice from a peer or relative.

Activity: Training carefully selected volunteer opinion leaders in local communities leverages limited Extension resources by building capacity through volunteerism. Using local networks and organizations, trained volunteers can demonstrate sound forest and wildlife management practices and connect other landowners with professionals and information that can help them reach their objectives. A 3.5 day volunteer training workshop has been offered annually since 1990 for a carefully selected group of up to 30 opinion leaders from across Maryland who are forest landowners or managers. Continuing education and instruction is provided. A total of 365 volunteers have been trained who own a total of 68,452 acres. The goal is to use volunteers to teach Maryland's forest owners and managers how sound forest management can improve wildlife habitat and other forest benefits.

Specifics on the 2005 Training Program

- 23 cooperators from 8 counties trained who owned parcels ranging in size from 5-2,700 acres.
- Change in knowledge measured in workshop evaluation (1= no knowledge; 5= much knowledge) A positive increase in knowledge level after training of greater than 1.5 is considered significant based on evaluations of a range of Extension workshops by the project coordinator.

	Knowledge before training	Knowledge after training	Average Change
MD forests	1.6	3.50	+1.90
Forest ecology	2.30	4.10	+1.80
Wildlife ecology	2.10	4.10	+2.00
Forest mgt. planning	1.70	4.10	+2.40
Habitat needs	2.20	4.10	+1.90
Marketing forest products	1.50	3.50	+2.00
Information sharing	1.60	3.90	+2.30

- All cooperators completed action plans.

Impacts: Based on an annual survey of volunteers, workshop evaluations, as well as personal feedback from cooperators. Maryland cooperates with the 11 other Northeast states to offer regional meetings, a list-serve, and other opportunities for sharing. Based on the 2005 sent out to 210 cooperators with a 30% return rate the following was found:

- 60% used the Internet
- Volunteers share forest and wildlife information on a one-to-one basis with 2,140 people. 8,446 people received information or heard about Coverts Project from cooperators overall.
- 69% had organized some event that included forestry or wildlife information.
- 18% had used the media and or Internet.
- Items distributed by cooperators included 300 brochures, 210 business cards, and reference manual information.
- 88 percent took steps in managing their own properties on a total of 4,527 acres.
- Cooperators spent 9,650 hours per year managing their own properties. Using a value of \$15 per hours, that equals \$144,750. Volunteers spent 1,920 hours per year in outreach-related activities, which equals \$28,800.
- 35% of cooperators reported that others sought forestry assistance as a result of a contact they initiated. An average of 3,265 acres was affected each year by these efforts.
- Organizations such as the Maryland Tree Farm Committee, Maryland Forests Association, Partnership for Sustainable Forestry, Maryland Forestry Boards, and woodland owner associations are populated with Coverts graduates who acknowledge their involvement was initiated by the training.
- Two informal woodland owner associations have been initiated as a result of Covert activities and the Forestry Short Course. The Maryland Woodland Owners Association in Frederick County has an active steering committee and offered three educational programs in 2005. Harry Ford, the leader of the group and a few others attended the Coverts Training this year. Terry Poole has been key to facilitating the needs of the group for meeting space and other needs. The Baltimore County

Forest Landowner Network was formed in Baltimore County as direct result of Covert Cooperators and a few who attended the Harford County forest short course in 2004. The group has a mailing list of 100 people who have attended the three educational programs offered in 2005. Dave Martin is key to helping the group with mailing, meeting space, etc.

Forest Stewardship

Need: There are 135,000 private forest owners in Maryland that own 78% of the forest resource. Only an estimated 10% of these landowners have a written forest stewardship plan, and fewer than 30% seek the assistance of a professional forester before harvesting timber. 75% of forest landowners own 1-10 acres and educational programs need to be developed for this underserved audience. To provide quality technical assistance and educational opportunities requires the development of cooperative working relationships with the state forestry agency, Maryland Environmental Trust, Maryland Tree Farm Committee, Maryland Forests Association, and other forestry organizations. The goal of the Extension education program is to offer dependable and timely educational opportunities through the use of seminars, workshops, newsletters, website, and other media on forest stewardship to Maryland forest landowners that will direct them to professional assistance and enable them to make informed decisions.

Activities:

- The website [www.naturalresources.umd.edu] is a one-stop location for forest stewardship information for forest landowners and professionals. Annual web statistics 2004 reported 275,738 hits with 58,752 visits, and 25,789 unique visitors.
- Since 1993, the quarterly newsletter called, “*Branching Out: Maryland Forest Stewardship Educator*,” has been produced and sent to 5,500 forest landowners and natural resources professionals. This effort is and has been supported financially by partners of Cooperative Extension. The state forestry agency and other organizations names of forest landowners to whom they have provided services.
- The Mid-Atlantic Forest Stewardship Seminar was offered each year from 1983 to 2000 to about 100 landowners per year. Other regional forestry seminars and workshops have been organized with county Extension educators.
- Numerous workshop and educational opportunities are provided in cooperation with other organizations and volunteer efforts.
- In 2004 a six week forestry short course was developed and delivered to 68 landowners in two counties. A CD including all program materials allows delivery to other counties. T
- In 2005 the specialist developed a self-assessment curriculum in cooperation with PA and VA for a backyard forestry program called “The Woods In Your Backyard” that will delivered by trained volunteers at the local level for landowners with 1-10 acres.

Impacts:

- The mailing list used for *Branching Out* and *Coverts* was used at least 5 times in 2005 by other partners and/or extension to send educational information that targeted forest landowners for forestry workshops through direct mail. Informal surveys indicate that about 15% of attendees at forest workshops learn about the program through *Branching Out*.
- The MD DNR Forest Service, thorough a memorandum of understanding, will provide \$15,000 in annual funding for educational activities. This is due directly to their respect for the education Extension provides.
- In 2006, the Maryland Tree Farm Committee started to provide \$1,000 in financial support to MCE for the Branching Out newsletter.
- In fall 2006, focus group testing was completed for the Woods in Your Backyard curriculum materials.

Deer & Vole Damage Management

Need & Activities: Deer populations in Maryland and throughout the eastern United States have increased dramatically in the last 20 years with serious economic, safety, and ecological impacts. Crop damage to agricultural crops has become severe and forest ecosystems are being seriously impacted by deer browsing. Deer-vehicle collisions, human fatalities, and the incidence of Lyme disease have all increased. In the early 1990's, the specialist led the development and implementation of an Extension program composed of applied research and demonstration projects, Extension publications, and professional training in cooperation with state wildlife agencies, county Extension agents, other states' Extension organizations, producer groups, and non-profit organizations. In 2000, large hardwood planting projects were experiencing high mortality due to vole damage. A cooperative research & education effort was developed with the state forestry agency. Both deer and vole programs focused on an integrated pest management.

The goal of the wildlife damage management program has been to provide research-based information that can be used by different target audiences (producers, residential landowners, local decision-makers, wildlife agencies) to solve problems. In addition, the deer program has sought to provide individual counties with information on community based deer management. A CD that includes all educational resources on deer damage management has been developed and distributed to many professionals and local government officials.

Impacts:

- Managing Deer Damage in Maryland (EB357) is used as the standard educational reference in Maryland and other mid-Atlantic states. This and other wildlife damage extension publications are used by the state wildlife agency for all deer and vole damage complaints, as well as by five state Extension services.
- Extension training with Master Gardeners has resulted in the ability of volunteers to provide informed assistance to those they serve.
- Presentations on deer and vole damage management are requested of the specialist by diverse groups in Maryland and the surrounding Mid-Atlantic states. The specialist has published papers in many multi-state and national proceedings and is involved with the organization of a bi-annual Eastern Wildlife Damage Management Conference and a Northeast Wildlife Damage Management Cooperative.
- Research studies on deer repellents and vole damage to tree plantations have been initiated and directed by the specialist, and all have resulted in peer-reviewed publications. A new deer repellent study completed from 11/05-4/06 was done in cooperation with county educator, Doug Tregoning and a Plato Industries representative.

Rural Enterprise Development (Agriculture & Natural Resources)

Need: The concept of rural entrepreneurship is being embraced by communities, agencies, and nonprofits involved with rural development. Forest and farm landowners are increasingly interested in deriving some income from their properties. Low profit margins and capital requirements of traditional farm crops, combined with small land holdings and different objectives, has resulted in greater interest in non-traditional income opportunities that utilize natural resources. Many landowners initiate new enterprises and fail due to the lack of good information and a well thought out ideas. Further, there is a lack of support by communities, local economic development, and other service providers. The goal of this program is improve the success of agriculture & natural resources enterprises by providing entrepreneurs with sufficient information and access to available resource to make an informed decision

on whether to abandon or start an enterprise.

Activities: From 1993 to 1997, educational programs were developed by an enterprise consultant for income opportunities related to forestry, natural resources, and horticulture using grant funding. Numerous peer-reviewed extension publications and workshop have been developed for a variety of audiences. Current efforts are focused on developing a center for beginning farmers and rural enterprise that will better coordinate and focus MCE resources, as well as the diverse service providers in the state.

Impacts:

- Between 1993 and 1997, workshops were used to attract potential entrepreneurs, provide needed information, and target those individuals with the greatest interest. Those wishing to proceed with an idea had the option of working with an enterprise consultant who provided an on-site visit and business planning assistance. The program reached about 2,500 potential entrepreneurs. One-third of program participants have used the information to start, diversify, or expand a new enterprise discussed at a workshop. About 25% have decided not to undertake an enterprise based on information received at a workshop. An enterprise consultant directed by the specialist worked with 42 clients on new enterprises. From 1993-1997, \$2.68 million in revenue were generated from these horticultural and natural resources enterprises.
- The specialist organized a national conference on natural resources income opportunities for private lands in April 1998. 290 landowners and natural resources professionals from 38 states and Canada attended and a 275-page proceedings was published. The conference has resulted in numerous follow-up projects and implementation of similar programs in MD, the Mid-Atlantic, and nationally.
- In 2004, the *“Forest Landowners Guide to Developing a Choosing a Natural Resource Based Enterprise”* was published and distributed nationally. Numerous requests for presentations based on this publication have been received. Since 2003, a series of 12 rural enterprise fact sheets have been developed to aid landowner in enterprise development, as well as a regional extension publication on developing and choosing a natural resource based enterprise.
- A strategic plan was developed for a *Center for Rural Enterprise and Land Stewardship* which involved is presently involving Extension to work more closely with rural development organizations and local economic development to better serve agricultural and natural resource based entrepreneurs. Numerous presentations and networking has occurred to further this effort.
- The specialist worked with other partners to organize the Rural Maryland Entrepreneurship Academy in July and November 2005 to bring together rural partners interested in entrepreneurship. This Academy and networks that have resulted are providing positive support and exposure for MCE regarding how it can be a player in this area.

Deep-Row Application of Biosolids Using Forest Trees

Need: Utilization of biosolids produced in the Mid-Atlantic area has relied heavily on surface application to agricultural land. Application rates are being reduced due to new regulations and land being lost to development. Developing new methods to beneficially use biosolids has become a major challenge.

Activities: A private company in Prince George’s County (ERCO, Inc.) has been working since 1983 on a beneficial reuse system that reclaims old gravel spoils and produces forest products. High rates of biosolids are applied in buried deep rows and planted with fast-growing hybrid poplar trees that utilize the biosolids over a 6-year rotation, when the site can then be harvested and reapplied. There have been no water quality problems after 15 years. In 1996, the specialist initiated the development of a

public/private partnership with ERCO, Inc and sought to involve campus-based specialist's, the sewage treatment industry and regulators (local, state & federal) into the partnership. The goal was to develop a credible Extension and applied research program to address research questions, fine-tune the production forest system, develop written materials and educational workshops, and work toward developing regulations based on sound science that will make this technique available to other sites. There are presently more than 10,000 acres of old gravel spoils in southern Maryland, many of which are suitable for this type of application.

Impacts:

- ERCO, Inc. has provided a minimum of \$55,000 in services and materials to implement applied research efforts and seek research funding.
- Annual field day workshops have been initiated since 1999 to educate regulators, industry officials, foresters, academics, and local leaders.
- Two professional papers were presented at national meetings, one is peer-reviewed. The specialist was invited by a national trade publication to write an article on the technique for those in the biosolids and water treatment industry (March, 1999).
- A cooperative research project with the Greater Vancouver British Columbia Waste Water Treatment District continues.
- In August 2000, as a direct result of partnership building, the two regional waste water treatment organizations that produce the majority of the biosolids in the Baltimore-Washington Metro area requested and funded a three-year grant to address research questions regarding the deep-row application method using forest trees. A proposal for \$345,000 was funded by the Washington Suburban Sanitary Commission with \$12,000 from McIntyre-Stennis funds.
- In March, 2005, the initial three-year project was funding for another three years for \$365,000, along with continued funding of \$12,000 from McIntyre-Stennis funds.
- The specialist was asked to submit and present a paper for the March 2006 Water Environment Federation (WEF) Biosolids meeting on the biosolids. Request by WEF to make submit as peer-reviewed.
- Deep row sites have been initiated in Pennsylvania on coal reclamation sites (1200 acres), in Virginia (100 acre research site), and in British Columbia (10 acre research site to be initiated soon), as a result of the research.
- The Western Maryland R, C, & D has agreed to provide leadership to develop a deep row biosolids project for the coal mines of western Maryland.

Incorporating Forest Stewardship Into Conservation Easements

Need: Maryland has one of the most successful conservation easement programs in the nation with over 50 private land trusts that are supported by the Maryland Environmental Trust, a part of the Maryland Department of Natural Resources. Conservation easements remove the possibility of development on a property in exchange for lower property values and tax advantages. Much effort is spent on obtaining easements, but there has been little focus on the long-term stewardship of forests under easement. In fact, there is a perception by the land trust community that sustainable forestry practices are incompatible with conservation easements.

Activities: Since 1998, the specialist has initiated a cooperative relationship with the staff of the Maryland Environmental Trust and other land trusts to address sustainable forestry practices. This has resulted in numerous workshops and trainings for conservation professionals and volunteers. These educational workshop have included a focused one-day training for land trust directors on incorporating forest stewardship into conservation easements, presentations at two other land trust workshops, one for county Rural Legacy directors, and another as a panel member at a Mid-Atlantic Land Trust Conference. In May 2002, the specialist initiated a workshop for foresters and land trusts

personnel to reduce barriers of conflict and encourage cooperation.

Impacts:

- The Maryland Environmental Trust has developed easement language that incorporated forest stewardship planning into long term conservation easements.
- Cooperative programming between Maryland Cooperative Extension and land trusts are now being initiated due to better communication and understanding.

Extension Professional Development

The specialist has participated in many professional development activities in which he has given presentations that are not listed below, but are listed under invited talks.

Improvement of Technical/Subject Matter Skills:

(1999, July). Conditions of the Forests Workshop. Fort Meade, MD. One-day invitational workshop to provide feedback on upcoming Environmental Protection Agency report on Mid-Atlantic Forests.

(1999, November). Balancing the Landscape. Annapolis, MD. Conference on forest fragmentation sponsored by the Chesapeake Bay Foundation.

(2004, October). Working Between Borders: Joint Annual Convention of Society of American Foresters and Canadian Institute of Forestry. Edmundton, Alberta, Canada. Four-day convention.

General/Leadership:

(1999, September). MD/DE Society of American Foresters Leadership Academy. Clear Spring, MD. One-day program focusing on team-building skills.

(2000, April). Dreamweaver Web Training. Hagerstown, MD. Two-day training by D’Vinci Interactive.

(2000, October – 2001, May & October). Northeast Leadership Development training. Selected by Extension Director to participate in three one-week leadership training sessions that required a special project.

(2000, April). Oak Regeneration Workshop. PA. One day workshop

(2002, May). Hazard Tree Identification and Management. Morgantown, WV. One day

(2004, May & June). Oak SILVAH Workshop. Elkins, WV. Four-day certification training in two segments to learn application of software to make oak forest regeneration prescriptions.

(2004, October). Society of American Foresters National Convention. Edmonton, Canada. Four-day convention concentrating on managing forests Canada and the US.

(2005, April). Smart Growth Training. Lithicum Heights, MD. Four-day training on smart growth principles and application in land use planning.

(2005, July & November). Rural Entrepreneurship Academy. Two two-day meetings for a select group of stakeholders interested in developing a rural entrepreneurship development system in Maryland.

Service

Professional Service

Offices and Committee Memberships Held in Professional Organizations:

1989 -1990. Maryland Forests Association. Education Committee. **Elected.**

1989 - 1993. Maryland Association of County Agricultural Agents

1990 - present. Maryland Extension Specialists' Association. Various committee assignments.

1993 - present. **Chair**, Continuing Education Committee (1993-2005). Voted Chair-Elect of Chapter by SAF member for 2006, Society of American Foresters, Maryland/Delaware Chapter Executive Committee. **Appointed.**

1995 - present. National Association of Forest Resources Extension Professionals (ANREP).

2001-2004. Northeast Regional Representative. Association of Natural Resource Extension Professionals (ANREP). **Elected to two two-year terms.** Chair of By-Laws Committee (2005).

1994 - 1999. American Paulownia Association. Research Committee.

Paid Consultancies:

(1993 - present). Expert Witness. Expert witness in three separate tree fatality cases that involved providing an expert opinion on the condition and maintenance of urban trees involved in the cases. Two cases involved working with the Pennsylvania Attorney General's office and one case involved a private law firm in Washington, D.C.

Testimony:

(1998). Maryland Legislature - Environmental Matters Committee. Annapolis, MD. Testimony on February 12, 1998. Asked by the Maryland Tree Farm Committee to testify regarding House Bill 364 which would provide greater liability protection to private landowners. House Bill was killed in committee.

(2000). Maryland Legislature - Environmental Matters Committee. Annapolis, MD. Testimony on February 15, 2000. Asked by Delegate Sheer to testify regarding House Bill 296 which would provide greater liability protection to private landowners. House Bill was passed by the legislature.

(2004) Maryland Legislature – Testified on behalf of Maryland Cooperative Extension in support of Maryland Rural Business Development Corporation (MARBIDCO). Enabling legislation passed.

(2005) Washington County Board of Zoning Appeals – Testified on behalf of Jeff Powell, a small sawmill owner who could lose his livelihood due to zoning problem. Provided suggestions on how ordinance should be changed to encourage this type of economic development.

University Service

1989. Caring For Your Family's Woodlands, Planning Committee for national absentee forest landowner workshop in Washington, D.C.

1989. Western Maryland Christmas Tree Workshop Planning Committee

1989. Search Committee for 4-H Natural Resources Curriculum Program Assistant Position.

1989. State Water Quality Team. Assisted three selected counties to develop and implement comprehensive water quality programs.

1989 - 1990. Alternative Income Opportunities Program Planning Committee. Planning of follow-up programs after National Conference on Alternative Income Opportunities held at Ogleby Park, WV, in April 1989. **Appointed.**

1989 - 1990. DNR-MCE Program Coordination Committee. Coordinate forestry programs between Maryland DNR Forest Service and MCE. Meetings held three times per year. **Appointed.**

1989 - 1994. Faculty Senate. Alternate Representative for Western Maryland Research & Education Center 1989, Representative 1990-1993.

1989 - present. **Organizer** (1989), **Chair** (1989 – 1994). Tri-State Income Opportunities Conference Planning Committee. Multi-state committee (WV, PA, & MD) planning annual income opportunities workshop.

1989 - present. **Co-Chair**. Mid-Atlantic Forest Stewardship Seminar Planning Committee. Organize seminar annually for 100-175 forest landowners. Mostly participants from the the tri-state area.

1989 - present. Maryland Tree Farm Committee. Extension representative. **Appointed.**

1989 - 1999. **Co-Chairman 1989**. State 4-H Natural Resources Committee. Develop and implement natural resources youth programs.

1990 - 1992. State 4-H Curriculum Development Committee. **Appointed.**

1990 - 1994. State and Regional Logger Training Committees. Develop continuing education program for Maryland loggers. **Appointed.**

1992 - 1993. Governor's Conference on Trees and Forests Educational Subcommittee. Formulated recommendations to address the problem areas in forestry education. Recommendations were submitted to the Governor. **Appointed.**

1992 - 1993. Maryland Wetlands Stewardship Committee. Developed professional workshops and publication in cooperation with EPA, NRCS, and other organizations. **Appointed.**

1992 - 1997. State 4-H Forestry Judging Contest Coordinator. Organized volunteers for annual state judging contest. **Appointed.**

1992 - present. Maryland State Forest Stewardship Committee. Met quarterly or as needed with Maryland DNR and other groups to direct state forest stewardship program. **Appointed.**

1992 - 1995, 1999. Central Maryland Forest Stewardship Planning Committee. Purpose was to plan an annual forest stewardship for forest landowners. Annual attendance of about 70-80 at seminars.

1993. Search Committee. For Regional Natural Resources Extension Specialist. **Appointed.**

1993 - 1994. Estate Planning Committee. Region 1 faculty to plan series of estate planning meetings.

1994 - 1997. Rural Development Focus Team. MCE committee of faculty interested in rural development concerns who met to discuss program ideas.

1995. Organizational Review Committee for Northeast Regional Agricultural Extension Service (NRAES). **Invited.**

1996 - 1997. Northeast Natural Resources and Environmental Management (NREM) Program Committee. Committee of 10 Extension professionals from the Northeast with the objective to develop

a conference to develop a joint Extension/research program for the Northeast directors. **Invited.**

1996. Deer Study Group. Group organized within Agricultural Economics Department at the request of Department Chair. Composed of Extension and research faculty and state wildlife agency representative. Purpose to organize public issues conference on deer by the Center for Agricultural and Natural Resources Policy within the Department. **Invited.**

1997 - 1998. Center for Private Forest Landowner Education – Steering Committee. The specialist cooperated with Extension foresters from 20 Northeastern states to develop 30 individual proposals as part of a \$3.5 million, 4-year grant proposal for the Center for Private Forest Landowner Education. The specialist submitted a proposal for \$199,919. The grant program was cancelled by USDA-CSREES. **Invited.**

1997 - 1998. **Chair & Organizer.** Natural Resources Income Opportunities on Private Lands Conference Planning Committee. Group of 15 professional from Extension, research, and private organizations in the Northeast and nationally to plan April 1998 conference.

1989 - present. **Chair-1994, 1995; Secretary-1992, 1993.** Northeast Forest Resources Extension Council (NEFREC). Group of NE Extension foresters meet bi-annually to discuss programs, share ideas, and develop collaborative efforts. Worked on subcommittee in 1998 to develop report on how to improve working relationship of Cooperative Extension and USDA Forest Service programs. **Elected.**

1998 - present. Appalachia Region Forest Certification Working Group Member. Asked by Program Leader to represent Maryland on a working group to develop standards for sustainable forestry in Central Appalachia. Part of an international effort by the Forest Stewardship Council to develop standards. I have reviewed drafts, solicited comments from forestry organizations, and attended a meeting in Boone, NC, to review comments and redraft language for standards. **Appointed.**

1998 - present. Science on the Cutting Edge. Youth science program. Work with Region I committee to organize one or two programs each year that incorporates hands-on training to encourage high school seniors to pursue college education in agriculture and natural resources careers. **Invited.**

1998. **Chair.** Promotion and Tenure Subcommittee. Region 1 candidate Tom Miller. **Appointed.**

1999 - 2000. Northeast Wildlife Damage Management Committee. Committee of Northeast Extension, state wildlife agency, U. S. Fish & Wildlife Service, and AES representatives with the purpose to identify and design regional wildlife damage research projects that have regional and multi-organizational interest. **Invited.**

1999. Search Committee. Allegany County Agricultural Educator. **Appointed.**

1999. Promotion and Tenure Subcommittee. Region I candidate Stanley Fultz. **Appointed.**

1999. Extension Annual Conference Planning Committee. Located keynote speaker for first evening of the conference and assisted with other duties. **Appointed.**

1999 - 2000. Eastern Wildlife Damage Management Conference Planning Committee. Responsible for assisting other committee members with developing proceedings format, editing of proceedings, marketing of conference, and location of exhibitors. **Invited.**

2000. Maryland Timber Stumpage Price Committee. State and private foresters, forest associations, and Extension foresters partnered to develop a statewide quarterly survey of stumpage prices (price paid to private forest owners for different timber species). Resulted in \$10,000 of funding from state agencies in Maryland & Delaware to support the project for two years (2000-2001). **Invited.**

2000. Non-Timber Forest Products: National Policies Ecology, Economy, and Culture. Attended 3-day national policy meeting sponsored by the Pinchot Institute for Conservation with 35 other leaders in forestry. Provided policy changes needed in the management of non-timber forest products (NTFP) on

public and private lands. Recommendations included in National Assessment of NTFP in the United States: Uses and Issues submitted to Congress. **Invited.**

1999 - 2000. Economic Considerations of Forest Stewardship for Private Forest Owners in the Northeast Planning Committee. One of five members of planning committee that assisted the conference chair in the organization of a 3-hour satellite videoconference held April 15, 2000 that was downlinked to over 50 sites in the Northeast. **Invited.**

2000-2001. Governor's Task Force on Nonlethal Wildlife Management. Asked by Dean to represent the College of Agriculture and Natural Resources on this contentious task force along with 11 other members specified in a Memorandum of Understanding. **Invited.**

Chair. Promotion and Tenure Subcommittee. Region 1 candidate Joe Fiola. **Appointed.**

2001. **Member.** Promotion Committee. Region 1 candidate Terry Poole. **Appointed.**

2002-present. Graduate Advisory Committee. UMCP. Eligible to serve on master's level graduate committees.

2003-2004. **Member.** College of Agriculture and Natural Resources Promotion & Tenure Committee. **Appointed.**

2002-2004. Unit Coordinator for Western MD Research & Education Center. Responsibilities for budget, some personnel, faculty & staff meetings, and other issues.

2005. Academy for Rural Entrepreneurship Planning Committee. Cooperate with other representatives from state agencies and private organizations to organize a two-part rural academy workshop that will be held on two two-day sessions in July and November, 2005. **Invited.**

2005. Delmarva Forestry Seminar Planning Committee. Cooperate with other natural resource professionals to organize and carry out regional forestry seminar to be held January 2006. **Invited.**

2005-present. Coalition for Land Use Education (CLUE). Ad-Hoc group of faculty from the University of Maryland met to discuss educational opportunities in land use education. Collaboration has resulted in formation of CLUE to further joint research and extension programming that will address land use and smart growth education. **Invited.**

2005. Agriculture Summit Wildlife Damage Committee. Asked by American Farmland Trust to participate in 4-person committee (MD DNR Secretary of Forest, Parks & Wildlife and other Wildlife Division personnel) to provide input for Governor's Agriculture Summit on wildlife damage recommendations. **Invited.**

2006. **Chair.** USDA Five-Year Agriculture and Natural Resource Program Planning Sub Committee. Chaired Natural Resources and Environment Subcommittee at the request of the program leader to develop logic models for the following areas: Land Use, Community Resource Development, Waste Management, Management & Sustainability of Forest Resources, and Coastal, Chesapeake Bay & Water Resources. **Invited.**

Community Service

1989 - 1990. Occasional Speaker, Washington County Sportsman Association.

1989 - present. **Committee Chair 1997 to present.** Hagerstown Church of Christ. **Elected.**

1990 - 1992. **Member.** Washington County Forestry Board. **Elected.**

1994 - present. **Member.** Fountain Rock PTA.

1996 - 1997. **Member.** Washington County Board of Education Report Card Committee. **Invited.**

1995 - 1999. **Co-Chair.** Fountain Rock PTA Environment and Science Committee. **Invited.**

2000 - 2001. **President,** Fountain Rock PTA. **Elected.**

2000 - present. **Chairman.** Hagerstown Church of Christ Youth Committee. **Elected**