

**The MDP report:** How can Maryland maximize its investments in land preservation? That's the question Joseph Tassone and four colleagues from the Maryland Department of Planning sought to answer in this clear-eyed study. The researchers first developed a detailed picture of the whole array of factors driving the spread of sprawl development and spurring the loss of working landscapes in Maryland. Then they made the case that the state needs to adopt a long-term strategy that is more pragmatic and focused. Among the conclusions are that the state should:

- Clearly identify and dedicate the funds it's willing to commit to land preservation.
- Carefully coordinate its transportation policies with its preservation policies.
- Designate priority preservation areas that are rich in resources and offer the potential of making the most environmental difference.
- Bolster the range and quality of market-based and incentive-based preservation tools available.

As a result of this research, the Board of Public Works is now screening new proposals based on how the local zoning would protect the State's investment and what has been done with local funds to increase the open space and rural areas in the affected jurisdictions.

**TDRs for Maryland:** Ten different Transfer of Development Rights programs operate in different parts of Maryland. These programs take a market-based approach to land preservation, separating ownership of the development rights to a property from ownership of the actual property. Using TDRs, landowners can sell and transfer the rights to develop their land to the owners of other parcels that have been targeted for high-density residential development.

To date, however, just four of these programs have protected more than 1,000 acres of farmland. Why do some TDR programs succeed while others fail? Does this approach hold promise for preserving Maryland's farmland?

These questions are being addressed in two ongoing studies, one by Virginia McConnell and Margaret Walls and the other by H. Grant Dehart and Rob Etgen.

McConnell and Walls are focusing their comparison on the two TDR programs that offer the best and most detailed data to work with, one in Montgomery County and another in Calvert County that is structured very differently. The researchers are also looking closely at the situation in Queen Anne's County, where a TDR program has been underutilized so far, but a density transfer program is proving quite popular with landowners. Preliminary findings by Dehart and Etgen indicate that the success of TDR programs depends in part on the ability of counties to carefully calibrate the supply of development rights in the marketplace with the demand for them from developers. Their study will create a detailed policy roadmap for TDR programs, showing where and how they might be used to help preserve farmland on the Upper Eastern Shore. Expected completion date: Summer 2006.

• In a detailed review of census data, researcher Bernadette Hanlon has identified strategic areas in 15 Maryland counties where the trends toward expanding urbanisation and contracting farmland have been especially pronounced. These data will now be used to focus an analysis of satellite imagery to measure long-term changes in Maryland's land cover since the 1970s. With this information, policy makers will be able to determine which valuable rural lands lie in the path of urban expansion and prioritize their acquisitions accordingly. Expected completion date: Summer 2006.

• Rapid, dense development of residential housing is fueling the loss of farms and farmland in Maryland. This study by Jennifer Dindinger and Rob Etgen analyzes the practice of downzoning, which limits the allowable density of development on targeted tracts. The practice has been controversial because of concerns by landowners that downzoning decreases the land values. The study builds on and refines the methods used in an earlier study from the Center that showed downzoned properties could retain their value in certain Maryland counties. Expected completion date: Summer 2006.

• A study by Gary K. Felton, Adel Shirmohammadi, and Saeid Kasraei focuses on developing tools that will enable Maryland to balance groundwater needs in the coming decades, when demand for both residential and agricultural uses are expected to increase. The study will develop a model capable of accurately predicting future water usage in order to identify the regions and counties where agriculture may be affected and help guide public policy on groundwater supplies. Expected completion date: Fall 2006.

# Sustainable Forestry Products and Prospects



**More than 40 percent of Maryland is forested today.** The state's 2.7 million acres of timberland actually total slightly more than its 2.1 million acres of farmland.

But overall numbers like this don't tell the whole story. Maryland forests are increasingly inaccessible to the forestry industry, thanks largely to current land-use trends. Forester Cal Lubben picked up a newspaper recently and saw an article toting up all the new houses planned for small towns near where he lives and works on the Lower Eastern Shore.

"Just about every one of these towns is looking to double, triple, quadruple in size," he says. "That means it's going to get tougher in forestry, and that means we don't have as much time as we thought we did to work on some of these issues. So I appreciate the Center's focus on forestry, and I think its dedication to forestry is an admirable thing."

**Forest Industry Assessment:** While forestry jobs are a small part of the employment picture statewide, they are critical to the economies of the rural counties with Maryland's largest swaths of undeveloped lands. In this study, Lloyd C. Irland compiled a baseline status report on the state of the industry and outlined strategies designed to help forestry remain a viable economic enterprise.

The study found that despite marked increases

in the amount and economic quality of Maryland's forest lands in the last 50 years, the industry faces daunting challenges. The most imposing of these is a shortage of harvestable tracts that are large enough to be economically viable—at least 50 acres.

Land use patterns are driving this shortage. The spread of residential and vacation-homes into rural Maryland breaks forest land into small, individually owned lots. The same trend complicates industry access even to the larger tracts nearby, as new residential communities often object to noise and traffic issues associated with forestry work. In addition, the economic potential of forestry operations is rarely considered in land conservation decisions made in Maryland.

Among the policy recommendations issued in the report are:

- Public policy and land use decisions in Maryland should operate according to a standard of no net loss of timber availability.
- Maryland needs to assess and develop innovative options for slowing the trend toward parcel fragmentation.
- Economic and business-development assistance programs should be targeted to the wood products sector.

## Ginseng as Forest Crop:

Wild American ginseng is in such short supply after decades of overharvesting—some of it legal, but much of it illegal—that it ranks as a threatened species. Can Maryland forests support controlled commercial production of a "wild-simulated" ginseng?

Researchers Marla S. McIntosh and Davis Leslie Slak planted experimental crops on forested sites in Central and Western Maryland, where the plant is native, and on the Eastern Shore, where it is not. The different sites required different agricultural practices, but plants grew successfully on all three sites. The researchers concluded that forested ginseng crops could be profitable and also serve as an incentive to preserve private forest land. Those results will soon be shared with the agricultural community through the Maryland Cooperative Extension.



## Carbon Sequestration:

Most scientists agree that global climate change is under way, due at least in part to disruptions in the complex global carbon cycle caused by human activities. Public policies designed to counter climate change may have important economic implications for Maryland's forests. Already, the Kyoto treaty on climate change has established the framework of an international financial market designed to protect and extend forest lands capable of "sequestering" carbon.

With Center support, researcher Steven W. Seagle is gauging the carbon-sequestration potential of forests in Garrett and Allegany counties. Will carbon-trading markets offer new economic opportunities to land owners? Can they spur the transformation of retired farmland into forests? What are the implications for state land use policies?

In addition, Seagle is analyzing whether forest management practices designed to boost carbon sequestration are consistent with other environmental benefits, such as biodiversity. Expected completion date: Spring 2006.

## Harvesting State Forests:

Public debate has been simmering in recent years over the proper way to manage Maryland's state-owned forest lands. Several environmental groups have called for an outright ban



on harvesting timber from state-owned properties, while forest managers with the Department of Natural Resources have defended a multi-purpose approach that aims for a proper balance among recreational, environmental, and economic values.

Researchers Sarah Taylor-Rogers and Jennifer Dindinger are developing a comprehensive assessment of the state's forest management practices. Their work will place Maryland's policies in regional and national perspectives. It will seek out input from the forestry industry, state forest managers, and environmental groups. The report will then form the basis of a public Forestry Forum bringing all parties together to discuss the management of state forests. Expected completion date: Summer 2006.

## Looking Ahead

*What are forests worth?* Researchers Robert Wieland, John Horowitz, and Christine Conn are working to answer this question in a groundbreaking study now under way. Their work will go beyond a simple estimate of timber values to forestry operations. State-owned forests serve as important recreational resources, have an intrinsic aesthetic value, and deliver a broad range of environmental benefits.

Economists have now developed professionally accepted standards for defining the value of a fascinating range of the "work" forests do, including preventing nutrients and sediment from polluting waterways, and storing carbon that would otherwise contribute to global warming. This study will provide the first comprehensive measure of the value of Maryland's state-owned forest lands. Estimated completion date: Summer 2006.

*"There is a lot of tension and uncertainty surrounding the forestry industry. That's one reason why I appreciate the Center's approach so much. They've brought a diverse group together, but it's a group that's never divisive."*

*—Cal Lubben, forester*



# Center Outreach and Education: Accomplishments, Opportunities

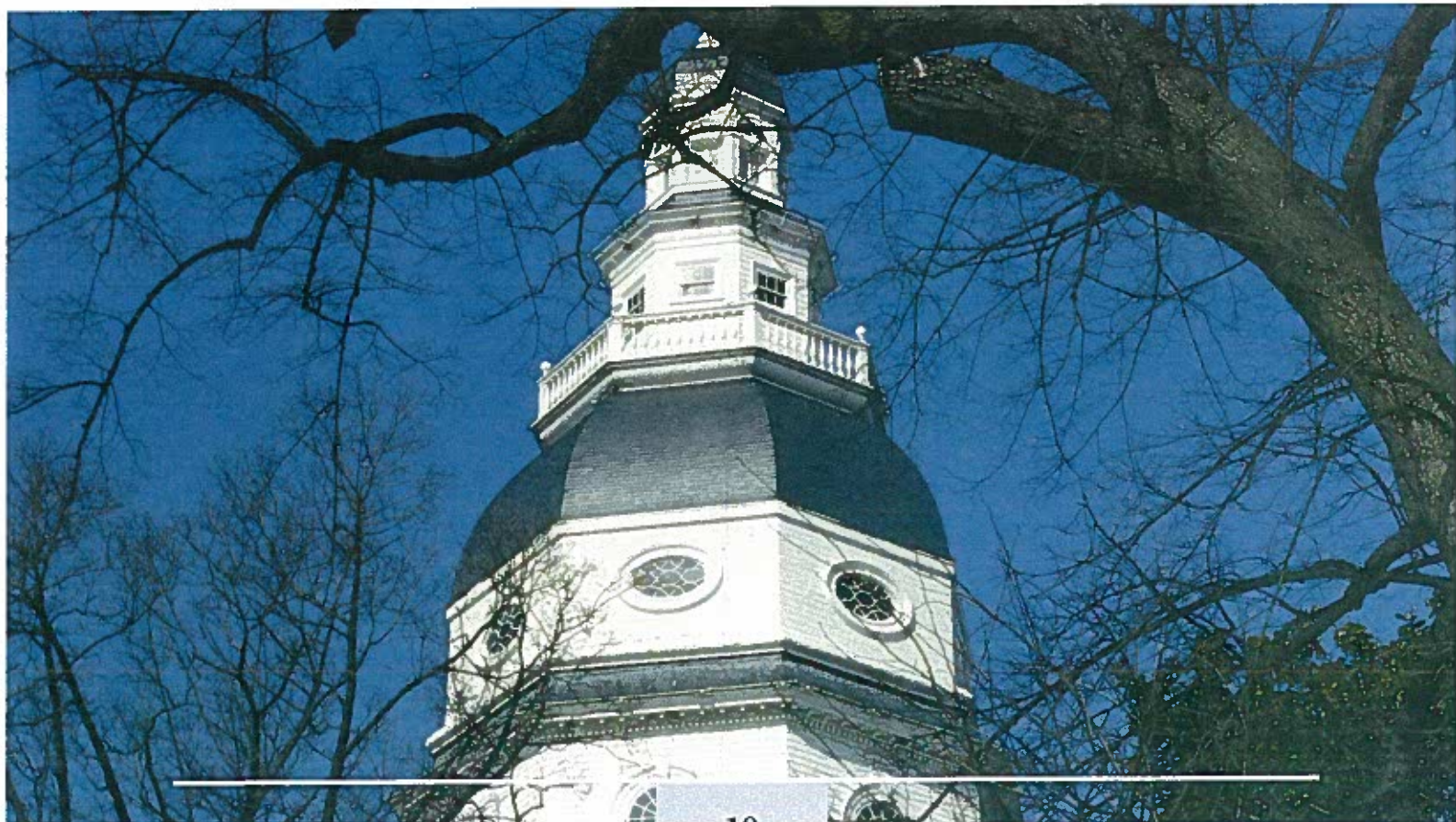
Solid, unbiased science is an essential part of the work of securing a viable future for Maryland's farms and forests. But science alone can't achieve that mission. Research findings that never make it out of academic journals and scientific meetings are findings that may never make a difference in the real world.

The Maryland Center for Agro-Ecology, Inc. is committed to engaging all manner of Marylanders in the work at hand. This effort takes many different forms. Center staff members go out on the road often with presentations specially tailored to different professional associations and civic groups. They give frequent briefings on the latest in research findings to legislators and policy makers. They bring key stakeholders in farming and forestry together with environmental stakeholders to discuss strategies and priorities for the future.

The public discussion about working landscapes has come a long way in these last five years. Below is a snapshot view of a few of the ways the Center contributed to that discussion.

- In one of its first major initiatives, the Center sponsored a two-day **workshop on non-point sources of nutrients** in 2000 at the Maritime Institute of Technology Training and Conference Center in Anne Arundel County. Participants reviewed the state of the science in a variety of disciplines and prioritized the most promising potential avenues for research into measuring and controlling phosphorous and nitrogen loads in waterways. These discussions helped shape research priorities early on for the Center's grants program.

- The Center followed up on that workshop with a 2001 **scientific summit on water quality**. Ten leading scientists gathered in College Park to share and evaluate the latest research findings related to controlling nonpoint sources of excess nutrients in the Bay and its rivers. These scientists then made consensus recommendations as to how these research advances can inform state policies and agricultural practices in ways that would help Maryland achieve the 40 percent reduction in nitrogen and phosphorous loads called for in the Chesapeake Bay Agreement.





- In May of 2002, the Center's **Maryland Working Landscapes Conference** drew more than 100 agricultural, environmental, governmental and other leaders to the Maritime Institute of Technology. Conference sessions focused on the economic and environmental benefits of working landscapes and on the best policies and practices used in other states to enhance their economic viability. The concluding session set forth an action agenda on behalf of working landscapes.

- Facilitator and Board member Fran Flanigan led 15 stakeholder listening sessions around the state in 2002 to gather baseline input on such topics as the future of working landscapes and the effectiveness of Maryland's land conservation programs. The more than 150 participants in these sessions also offered guidance on the proper role of the Maryland Center for Agro-Ecology. They wanted the Center to serve as a clearinghouse for scientific knowledge, to act as a bridge between farmers and environmentalists, to be a spark for proactive public policy actions, and to advance public knowledge and concern for working landscapes.

- In 2003, the Center convened a select, statewide group of elected officials and government leaders involved in land use and economic development for a **County Working Lands Conservation Workshop** at the Maritime Institute of Technology. Center leaders presented the latest research findings on the impacts of downzoning and the best ways to strengthen the use of conservation easements. Participants shared conservation "success stories" and detailed the public policy

tools that helped create those successes.

- In 2004, Director Russ Brinsfield delivered briefings to key state legislators serving on the House Environmental Matters Committee and the Senate Health, Education, and Environment Committee. These presentations offered an

overview of the Center's mission, along with a concise and authoritative summary of Center-sponsored research to date on water quality and land use issues. Brinsfield concluded by setting out the key elements in a public policy agenda that will maximize Maryland's chances of achieving its water quality and land preservation goals in the most cost-effective manner.

- Center staff conducted a workshop in 2005 on the effectiveness of TDRs, PDRs, and clustering as land preservation tools for political, governmental, and agricultural industry leaders in Calvert, St. Mary's, and Charles counties. Historically rural, these Southern Maryland counties are facing fast-mounting development and urbanization pressures. The presentation summarized the devastating effect these pressures have had on agriculture in Southern and Central

Maryland and outlined where and how these tools have been used effectively in other regions of the state.

- Early in 2005, Brinsfield briefed members of **Leadership Maryland**, an organization that nurtures young corporate and civic leaders by connecting them with training and networking opportunities, on the importance and status of Maryland's nutrient reduction policies. Current state policies will likely achieve modest future

*"The applied research that's been done through the Center has made invaluable contributions to the public debate in Maryland on issues like land preservation and downzoning. These studies have really changed the way people see these issues in critical ways."*

*—Rob Etgen, Eastern Shore Land Conservancy*





# Looking Ahead

*“In policy making, we hear so many times about how we need to ‘follow the science.’ Well, the science we’re talking about is the science being conducted by this Center.”*

*—Delegate Maggie McIntosh,  
chair of Environmental  
Matters Committee*

*The Center aims to expand its educational and outreach efforts in the months and years ahead. Staff will be more available to deliver presentations and consultations will be increased. Leadership will focus on proactive communication about policies and problems at county, regional, and state levels.*

*The upcoming release of the new Statewide Plan for Agricultural Policy will drive some of this work. The Center will look to spur the implementation of its well-grounded recommendations and to sponsor scientific research that is in line with Maryland’s priorities for the future. In addition, the release of such a major plan should be seen as an opportunity to spark public discussion about the role of working landscapes in Maryland’s future.*

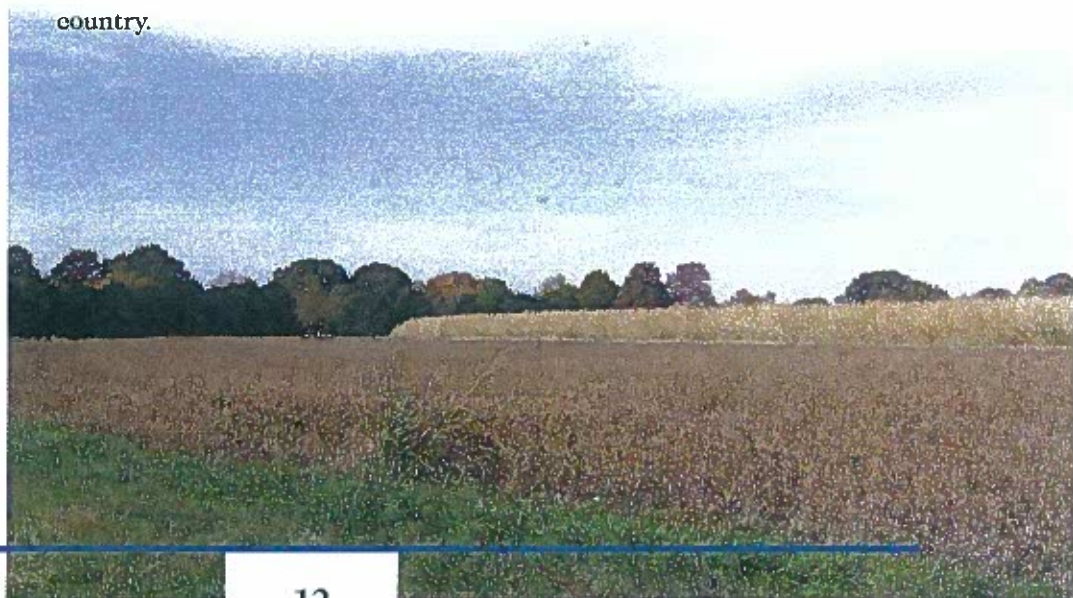
reductions in nutrient overloads, Brinsfield reported, but not the 40 percent drop required under the Chesapeake Bay Agreement. He outlined two key policy outcomes that could put Maryland in position to achieve those goals—expanding cover crop acreage and promoting best management practices in agricultural fertilizer usage.

- Assistant Director Sarah Taylor-Rogers presented findings from Center-sponsored research to the Maryland Agricultural and Resource-Based Industry Development Corporation. MARBIDCO’s mission of providing new and enhanced economic development services to agricultural, forestry, and seafood industries offers **opportunities for future partnerships.**

- Governor Robert L. Ehrlich, Jr. has asked the Maryland Agricultural Commission to develop a new **Statewide Plan for Agricultural Policy and Resource Management.** The Maryland Center for Agro-Ecology serves on the advisory committee guiding the plan’s development. When it is released in spring 2006, the plan will offer comprehensive recommendations for state policies that impact the agricultural sector, from regulations and taxes imposed by the state to bolstering marketing strategies and expanding into new markets. Two essential, related goals will be examined in the process: the need to promote environmentally sound agricultural practices and the need to stabilize the state’s agricultural land base.

- The new **Maryland Collaborative Land Use and Education Network** at the University of Maryland seeks to spark interdisciplinary endeavors among scientists to pinpoint land use trends and study strategies that can help preserve the working landscapes and coastal communities that support resource-based industries. Center research priorities and grant opportunities disseminated through the Network may open up new avenues of scientific inquiry.

- Center staff members are playing key roles in the development of a new **Center for Integrative Environmental Research** at the University of Maryland. Headed by industrial ecologist Matthias Ruth, this new center will serve as a focal point for multidisciplinary research efforts across the fields of engineering, health, the natural sciences, and the social sciences. With support from the Maryland Center for Agro-Ecology, Ruth’s center is also aiming to facilitate collaborative research initiatives between University faculty and scientists from around the region and the country.



# Financial Overview: 1999 - 2005

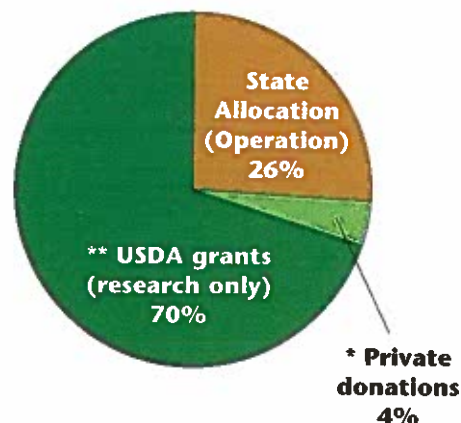
In 1999, the Maryland Center for Agro-Ecology, Inc. was formed to bring together diverse interests on issues of agriculture and the environment. Since then, the Center has funded 38 research projects with \$3.5 million in grants from the Cooperative State Research, Education, and Extension Service (CSREES) Special Research Grants program of the USDA. These funds have been matched by another \$1.2 million from in-kind and other sources for a total research investment of \$4.7 million. The Center has also benefited from its special relationship with the University of Maryland, College of Agriculture and Natural Resources. Since the Center's inception, the University has provided more than \$1.3 million in operational support. All of this has been made possible through several Memoranda of Understanding between the University and the Center. Individual board members and private foundations have also contributed \$190,000 to help further the Center's mission. With this support, we have been able to make a difference, not only with the research funded but also in the education, outreach, and policy arenas.

*Special thanks go to the following foundations and individuals for their continued generous support of the Center:* Abell Foundation, Chesapeake Bay Trust, Mrs. Nina Houghton, Keith Campbell Foundation for the Environment, Town Creek Foundation and the Widgeon Foundation.

Support and Revenue	Amount
USDA Grants (research)	\$3,528,903
State Allocation (Operating Budget)	\$1,300,000
Private Donations	\$190,000
<b>Total</b>	<b>\$5,018,903</b>

Expenditures	Amount
Research Grants	\$2,469,760
Operations	\$1,290,440
<b>Total</b>	<b>\$3,760,200</b>

Support and Revenue  
Total=\$5,018,983



## Statement of Activities

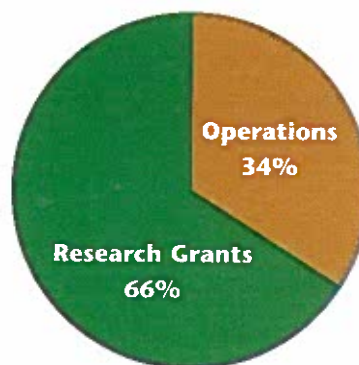
### Research Expenditures (Federal Grants)

Federal grant monies are awarded by the CSREES Special Research Grants program through the USDA. These funds are used exclusively for the Center's Competitive Grants program. From 1999 to 2005, the Center funded 38 research projects with \$3.5 million from USDA grants and \$1.2 million in match.

### Operations Expenditures (State Allocation)

Category	Percentage
Salaries	32%
Fringe	15%
Overhead	1%
Education and Outreach	36%
Board	10%
Travel	1%
Supplies and Equipment	5%
<b>Total</b>	<b>100%</b>

Expenditures  
Total=\$3,760,200



\* This figure does not include \$181,000 collected and held by the Center for the Governor's Agricultural Forum in 2006. The Center served as a clearinghouse for these funds, which were used exclusively for the Forum and production of the Strategic Plan for Agriculture and not towards any Center-related expenditures. \*\* This figure does not include \$1.2 million provided as match.



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