

Losing Our Natural Heritage:

North Carolina's Disappearing Open Spaces

William Coyne
Elizabeth Ouzts

NCPIRG Education Fund
Fall 2003

Acknowledgments

The North Carolina Public Interest Research Group Education Fund gratefully acknowledges Ben Hitchings, Legislative Chair for the North Carolina Chapter of the American Planning Association, Edgar Miller of the Conservation Trust for North Carolina, and Jennifer Dempsey and Gerry Cohn of the American Farmland Trust for peer review.

Special thanks to Dan Good of the Natural Resources Conservation Service for providing information and guidance, and to David Prestwood for help with data acquisition and photographs.

Finally, the authors recognize Susan Rakov and Jasmine Vasavada for editorial assistance and Harriet Eckstein for layout and design work.

This report was made possible by generous grants from Fred Stanback and the Z. Smith Reynolds Foundation.

The authors alone bear responsibility for any factual errors. The recommendations are those of the NCPIRG Education Fund. The views expressed in this report are those of the authors and do not necessarily express the views of our funders.

© 2003 NCPIRG Education Fund

The NCPIRG Education Fund, is a 501(c)(3) organization dedicated to protecting the environment, the rights of consumers, and good government in North Carolina.

For more information about North Carolina PIRG, call (919) 933-5889 or email ncpirg@pirg.org.

NCPIRG Education Fund
405 W. Franklin Street
Chapel Hill, NC 27516

Table of Contents

Executive Summary	5
Introduction	7
Understanding the Data	9
Land Use Changes in North Carolina, 1982-2002	13
The Piedmont	14
The Coast	18
The Mountains	20
Projected Land Use Changes, 2002-2022	22
Policy Findings	27
Appendices	28
Appendix A: Data for Increase in Developed Area by Study Area, 1982-2002	28
Appendix B: Data for Loss of Open Space by Study Area, 1982-2002	29
Appendix C: Ranks of Study Areas by Projected Land Use Change	30
Endnotes	31



Executive Summary

North Carolina's signature woodlands, farmlands, and open spaces are disappearing at an alarming rate. In the last 20 years, North Carolina has lost 2.8 million acres of cropland and forest land. Between 1982 and 2002, North Carolina lost cropland and forest land at the rate of 383 acres every day.

In the last 20 years:

- Charlotte, the state's largest metropolitan area, lost 26% of its total cropland and forest land for a total of 300,000 acres, more than any other region in the state.
- The Triangle region saw 21% of its cropland and forest land transformed. The region lost 220,000 acres of cropland and 140,000 acres of forest land.
- The Triad region (Greensboro, Winston-Salem, and High Point) lost 24% of its cropland and forest land, a total of 216,000 acres.

Between 1982 and 2002, developed land in the state grew by 2 million acres.

- The Triangle region more than doubled its developed acreage, adding 300,000 acres.
- Rural counties in the Piedmont region added 350,000 acres of development.
- The Charlotte area added 300,000 acres of developed land, an increase of 92%.

Over the same period, population has grown by 42%—remarkably fast, but slowly in comparison to the growth of developed acreage, which has increased 82%.

If current trends continue, North Carolina's treasured open spaces will disappear as vast tracts of land are developed into urban areas in the next 20 years.

Between 2002 and 2022:

- 9% of forest land, or 1.4 million acres will be lost.
- 32% of cropland will disappear, totaling 1.7 million acres.
- Developed land area will increase 55%, or 2.4 million acres, statewide.

Recommendations

Keep the Million Acre Promise

Three years ago, in response to the state's vanishing open spaces, the General Assembly pledged to save 1 million acres of our open spaces by 2010. They designated four open space preservation programs to carry out their promise: the Clean Water Management Trust Fund, the Parks and Recreation Trust Fund, the Natural Heritage Trust Fund, and the Farmland Preservation Trust Fund.

While these programs have been successful, the state is behind on its progress to save a million acres, with only 150,000 acres protected in the last three years. Meanwhile, the recent budget crisis has threatened funding of the programs. For fiscal year 2004, the Clean Water Management Trust Fund received a 38% cut from its original allocation, while the Farmland Preservation Trust Fund received no funds at all. With incoming revenue standing a chance to fall short of projections, the temptation will be to cut these programs even further.

Even at full funding levels, existing land conservation programs are not enough to reach the million acres goal. To do so, the programs need an additional \$1.2 billion over the next seven years, or \$176 million each year. A portion of this funding could come from developer and realty fees, and will enable direct government purchases; a small amount can come from tax incentives for private landowners to conserve their land.

North Carolina's leaders should take steps to:

- Protect our natural resource trust funds from severe budget cuts.
- Establish a permanent, dedicated source of open space protection funding.
- Add to existing tax incentives for land conservation and to penalties for development.
- Expand the number of tools available to local governments to protect open spaces.

Introduction

North Carolina is known for its beautiful open spaces. People come from far and wide to see the vistas from the Smoky Mountains, hike and fish along the lazy rivers of the Piedmont, and visit the beautiful beaches of the Outer Banks. Our fertile soils grow bountiful crops of corn, soybeans, wheat, and tobacco, and our open spaces provide crucial habitat for wildlife.

But our open spaces are threatened by burgeoning development. From the Great Smokies to the Outer Banks, the natural areas that we know and love are vanishing while development races across the countryside:

- Little Sugar Creek, which runs through Charlotte, is under intense pressure from development. The creek is an important piece of the puzzle in the Catawba River Restoration plan, and conservationists rely on funding from the state to preserve this piece of open space in the fastest-growing area of the state.
- In Rutherford County in the western mountains, developers have already claimed a 2,200 acre portion of the Biggerstaff Mountains, which provided habitat for the white irisette and the black bear, and once offered hiking, hunting, and fishing for visitors.

Though open spaces continue to disappear, the open space preservation trust funds established by the General Assembly have proven successful at protecting some of our most prized open spaces:

- The Clean Water Management Trust Fund and the Natural Heritage Trust Funds provided the funds needed to purchase 4,468 acres of land around the Little Tennessee River and its surrounding tributaries. The area, known as the Needmore Tract, is 43 square miles of land adjacent to the Nantahala National Forest, and includes habitat for several endangered species as well as farmland.
- In 2001, the Natural Heritage Trust Fund provided the necessary money for the Department of Environment and Natural Resources and the Division of Parks and Recreation to purchase the Princess Ann Swamp and the Big Sandy Ridge along the Lumber River.

Formerly owned by International Paper Corporation, both areas had been heavily logged, but now have been allowed to grow back to a more natural state.

- The Sutphin Mill community in south Alamance County is comprised primarily of family farms. While family farms were once common in the Piedmont region, the farms in Sutphin Mill represent a type of community rarely found today. The Hickory Grove Dairy Farm has been in the Newlin family since 1904, when the family raised chickens to support themselves. In 2002, the Farmland

Preservation Trust Fund was able to fund the acquisition and conservation of the Hickory Grove Farm.

The open space preservation trust funds created by the General Assembly can, if fully funded, provide the resources needed to protect much of North Carolina's threatened natural heritage. However, present funding levels will leave us far short of our goals.

If the trust funds are not fully funded to purchase land and conservation easements, we will not only fail to reach the long-term goal of protecting one million acres of open space, but we stand to lose substantially more of our natural heritage in the short term.

Understanding the Data

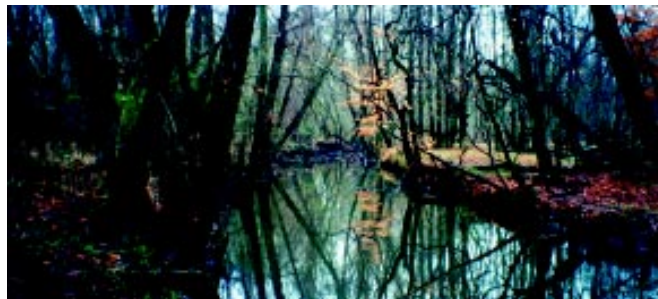
This report uses the Natural Resource Conservation Service’s (NRCS) Natural Resource Inventory (NRI) data to document trends in North Carolina land use over the last 20 years and to make predictions of future trends over the next 20 years.

The NRI is a survey of land use nationwide conducted at five year intervals. NRI survey data is available for the years 1982, 1987, 1992, and 1997. Data from 2002 through 2022 are our own projections.

The survey categorizes land into one of several land use types. From the survey, the NRCS is able to make a statistically relevant estimate of the number of acres of various land use types in an area as small as a multiple-county region.

Understanding the Geography

Because the NRI is a survey and thus only an estimate, it is not statistically relevant at the individual county level. Groups of counties are the smallest geographical area for which the NRI can accurately portray land use acreages.



For this reason we combined North Carolina counties into eleven separate groups in order to investigate land use trends at a statistically relevant level. Eight of the eleven county groupings are made up of counties surrounding major metropolitan areas—which we refer to as urban metro area counties. The remaining three groups are the rural counties of the mountains, the Piedmont, and the coast. For example, when the report mentions Charlotte or the Charlotte area, the actual geographic area being referenced is the grouping of Cabarrus, Gaston, Lincoln, Mecklenburg, Rowan, and Union counties, not the actual geographical city of Charlotte.

Figure 1 contains a list of the county groupings and counties included in each group.

Figure 1. County Groupings

The Piedmont Region	
Charlotte	Cabarrus, Gaston, Lincoln, Mecklenburg, Rowan, Union
Fayetteville	Cumberland, Harnett, Hoke, Robeson
Rocky Mount-Greenville	Edgecomb, Nash, Pitt
The Triangle	Chatham, Durham, Franklin, Johnston, Orange, Wake
The Triad	Alamance, Davidson, Davie, Forsyth, Guilford, Randolph, Stokes, Yadkin
Piedmont Rural	Surry, Iredell, Cleveland, Rockingham, Caswell, Person, Granville, Vance, Warren, Halifax, Northampton, Lee, Moore, Stanly, Montgomery, Anson, Richmond, Scotland, Sampson, Wayne, Greene, Wilson
Coastal Region	
Wilmington-Jacksonville	Brunswick, Columbus, New Hanover, Onslow, Pender
Coastal Rural	Hertford, Gates, Camden, Currituck, Chowan, Bertie, Martin, Perquimans, Pasquotank, Washington, Tyrrell, Dare, Hyde, Beaufort, Pamlico, Carteret, Craven, Jones, Lenoir, Duplin, Bladen
Mountain Region	
Asheville	Buncomb, Madison, Henderson
Hickory-Morganton	Alexander, Burke, Caldwell, Catawba
Mountains Rural	Cherokee, Graham, Clay, Macon, Swain, Jackson, Transylvania, Haywood, Polk, Rutherford, Yancey, Mitchell, McDowell, Avery, Watauga, Ashe, Alleghany, Wilkes

Understanding the Numbers

The NRI survey estimates the acreage of various land use types down to the county level. Land use is divided into the following categories: forest, cropland, pasture, federal, water, conservation recovery, urban, rural transportation, and minor land cover.

For the purposes of this report, we have chosen to investigate trends in the three largest land use categories: forest, cropland, and developed land (which we define as urban land combined with rural transportation). Forest and cropland are the two largest open space categories surveyed by the NRI and the two most rapidly decreasing land use types. Developed land is the fastest growing land use type.

Our calculations for past changes in acreage of forest land and cropland are from the results of the NRI report. To come up with our calculations of changes in developed land, we combined urban land and rural transportation land (roads).

Figure 2. Land Use Changes, Urban vs. Rural, 1982-2002

	Increase in Developed Acreage	Decrease in Cropland and Forest Land Acreage
Urban Counties	1,200,000	1,400,000
Rural Counties	710,000	1,370,000

The total increase in developed acreage does not equal the decrease in acreage of forest and cropland, meaning not all forest land and cropland lost has become developed, and/or not all developed land took the place of cropland or forest land.

Some cropland and forest land were converted into land use types other than urban

developed land, and vice versa, according to the NRI survey. For example, cropland could have been transformed into pasture land or minor land uses (light rural development).

Figure 3 provides a breakdown of the percentage of cropland and forest land that was converted into the other land use types from the period 1982-2002.

Figure 3. Conversion of Cropland and Forest Land to Other Land Use Types

Urban Developed Land	71%
Federal Land	16%
Conservation Reserve Program	6%
Pasture Land	4%
Minor Land Uses	3%
Water (Streams and Lakes)	1%

Some cropland and forest land may have been recategorized without actually having changed land uses. For example, if the federal government purchased land formerly categorized by the NRI as forest land and that land is now labeled as federal land, the land itself has probably not been actually converted to another land use.

Thus our estimates of cropland and forest land lost include a margin of error. The error equals the amount of cropland or forest land that was re-categorized into other land use labels without having actually changed uses. The error is unavoidable given that the data itself does not describe whether the recategorization was due to a change in actual land use or a change in description.

The Projections

In order to calculate estimated acreage for 2002 and then project changes in acreage through 2022, we used census results and

future census projections to calculate land use changes per new resident. While there are multiple ways to make projections of future land use, we felt it was important to link those projections to population. We felt any prediction of future growth must account for the U.S. Census' projections of rapid population growth in the next two decades, which will be one of the most important factors in future development.

For each period between NRI surveys, 1982-1987, 1987-1992, and 1992-1997, we calculated a per-new-resident change in acreage for each of the three major land use categories—for developed land, cropland,

and forest land. The period of 1982-1987 was a boom period, with much higher rates of development per new resident and higher rates of cropland and forest land decrease per person than 1987-1992 or 1992-1997.

To calculate the change in acreage for 1997-2002 for each land use category we multiplied the change in population between 1997 and 2002 by the change in acreage per new resident from 1992-1997.

To calculate the projected land use changes from 2002 through 2022 we multiplied population projections from the U.S. Census by the per-new-resident change in acreage from 1992-1997.

Land Use Changes in North Carolina 1982-2002

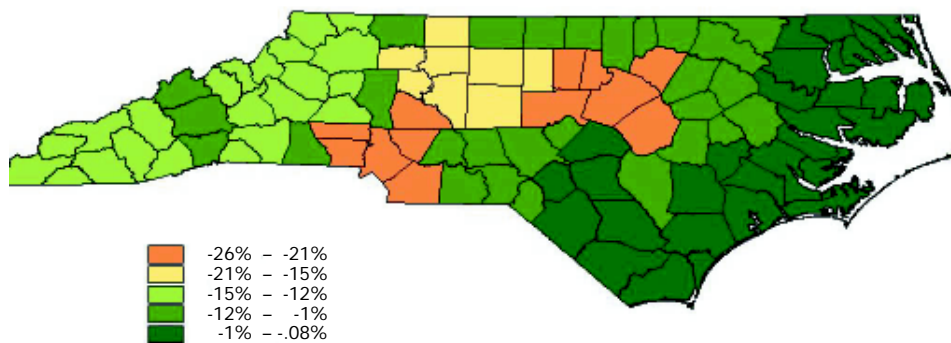
In the last two decades North Carolina has lost 2.8 million acres of cropland and forest land. The state has seen 22% of its cropland and 8% of its vast forest land disappear. While much of the loss of these open spaces has been concentrated near major urban centers, rural areas of the state, especially the western mountains, also lost vast tracts of open space to development. (See Appendix B: Data for Loss of Open Space by Study Area, 1982-2002.)

Loss of cropland in the state was more evident in urban metro-area counties, which lost 760,000 acres compared to rural counties' loss of 685,000 acres. However, rural counties lost slightly more forest land than urban counties: 685,000 acres

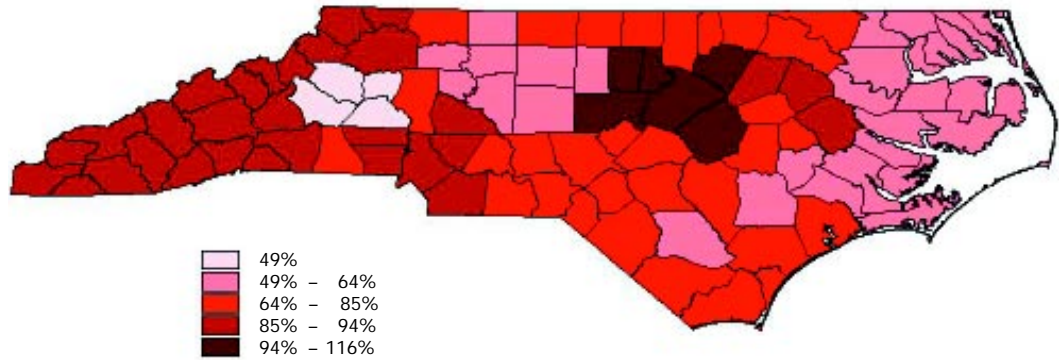
compared to 672,000, respectively.

The disappearance of North Carolina's farm and forest land is for the most part the result of burgeoning development. All told, in the last 20 years, developed land area has increased by 2 million acres. (See Appendix A: Data for Increase in Developed Area by Study Area, 1982-2002.)

The majority of development occurred in counties that comprise the metropolitan areas of the state's largest cities. Between 1982 and 2002, these counties added 1.26 million acres of developed land, an increase of 83%. Rural counties saw an almost equal percentage increase in developed land as urban metro area counties, adding 80% more developed land, an additional 710,000 acres.



Map 1. Percent Loss of Total Crop and Forest Land, 1982-2002



Map 2. Percent Increase in Developed Land Area, 1982-2002

The Piedmont

The Piedmont region of North Carolina is home to most of the state's population and large metropolitan areas. Charlotte, the Triangle (Raleigh-Durham-Chapel Hill), the Triad (Greensboro-Winston-Salem-High Point), Fayetteville, and Greenville-Rocky Mount make up the major urban metropolitan areas of the region.

As development sprawls out from the Piedmont's urban centers, open space is disappearing at an alarming rate. During the

last 20 years, the Piedmont region has lost 580,000 acres of forest land and 1.1 million acres of cropland, decreases of 7% and 27%, respectively.

The Piedmont's rapid rate of open space loss corresponds with its high rates of development. The majority of land development in the state over the previous 20 years occurred in the Piedmont region. Between 1982 and 2002, the Piedmont developed an additional 1.35 million acres of land, an 87% increase in developed land area.



Map 3. Piedmont County Groupings

Piedmont Urban Metro-Area Counties

Charlotte

The counties in the Charlotte metro area, Cabarrus, Gaston, Lincoln, Mecklenburg, Rowan, Union, and Alexander, comprise the largest metropolitan area in the state with a population of 1.4 million in 2002.



The Charlotte area saw 147,000 acres of farmland and 156,000 acres of forest land disappear between 1982 and 2002, decreases of 38% and 20% respectively.

In the previous 20 years, the Charlotte metro area also experienced one of the largest increases in developed land of any area in the state. Developed land area increased 92% with 300,000 additional acres developed. (See Figure 4.)

The Triangle

Similar to the Charlotte area, the Triangle counties of Chatham, Durham, Franklin, Johnson, Orange, and Wake also developed 300,000 acres of land between 1982 and 2002. Developed land in the Triangle increased 116%, the highest percentage increase of any urban area in the state over that time.

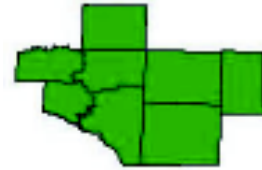


Record-setting development rates correspond with overwhelming losses of farmland and forest land in the Triangle. Farmland acreage decreased 44%, or 220,000 acres; forest land has decreased by 11% since 1982, or 140,000 acres.

The Triad

The Greensboro-Winston Salem-High Point metro area counties (Alamance, Davidson, Davie, Forsyth, Guilford, Randolph, Stokes, and Yadkin) make up the

second most populated metro area. More than one million people call the area home.



With a population surge of nearly one-third since 1982, the Triad has seen development trends similar to those of Charlotte and the Triangle. Developed land increased by 63% since 1982, more than 215,000 acres. During the same period, the Triad area lost 28% of its cropland (143,000 acres), and 10% of its forest land (115,000 acres).

Fayetteville

The Fayetteville metro area comprises the counties of Cumberland, Harnett, Hoke, and Robeson. Fayetteville is one of the smaller metropolitan areas in the Piedmont with 563,000 people in 2002.



Between 1982 and 2002, Fayetteville lost 70,000 acres of farmland and 30,000 acres of forest land. At the same time, developed land increased 78%, an increase of 100,000 acres.

Greenville-Rocky Mount

The Greenville-Rocky Mount metro area is the smallest of the major urban areas in the Piedmont with a population of 282,000 in 2002. The area consists of Edgecombe, Nash, and Pitt counties.

Greenville-Rocky Mount lost 70,000 acres, or 16% of its cropland during the same period. The area lost 7% of its forest land, totaling 30,000 acres.



Greenville-Rocky Mount has seen its acreage of developed land increase by almost 94% in the last 20 years. Developed acreage grew from 81,000 in 1982 to 157,000 in 2002.

Piedmont Urban Area Totals

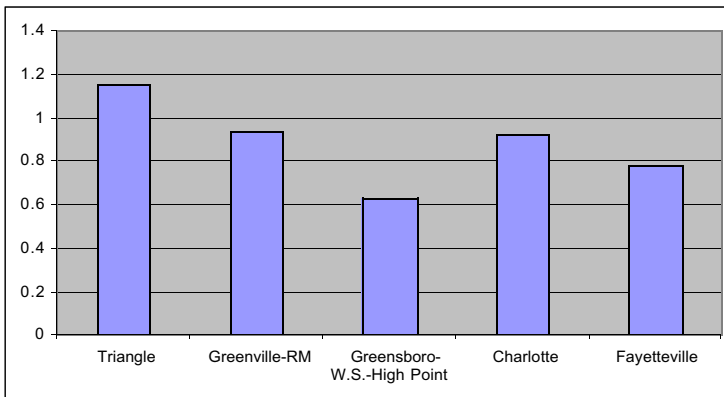
Much of North Carolina's increase in developed land area has occurred in and around the metropolitan areas of the Piedmont region.

The counties that comprise the metro population areas of Charlotte, the Triangle (Raleigh-Durham-Chapel Hill), the Triad (Greensboro-Winston Salem-High Point), Fayetteville, Greenville, and Rocky Mount contain almost 60% of the state's population. 68% of the state's new residents arriving between 1987 and 1997 now live in the counties surrounding the Piedmont's major cities.

Urban counties in the Piedmont have seen enormous losses of open space in the last 20 years. Forest land has shrunk by 475,000 acres and cropland has dropped 657,000 acres, decreases of 11% and 27%, respectively. (See Figures 5 and 6.)

Much of this loss of open space can be attributed to rapid development. Along with the population growth of the 1980s and 1990s came intense new development around the Piedmont's urban areas. Counties that surround the Piedmont's urban areas saw an 88% increase in developed acreage between 1982 and 1992. All told, urban counties in the Piedmont developed 1 million acres in the last 20 years.

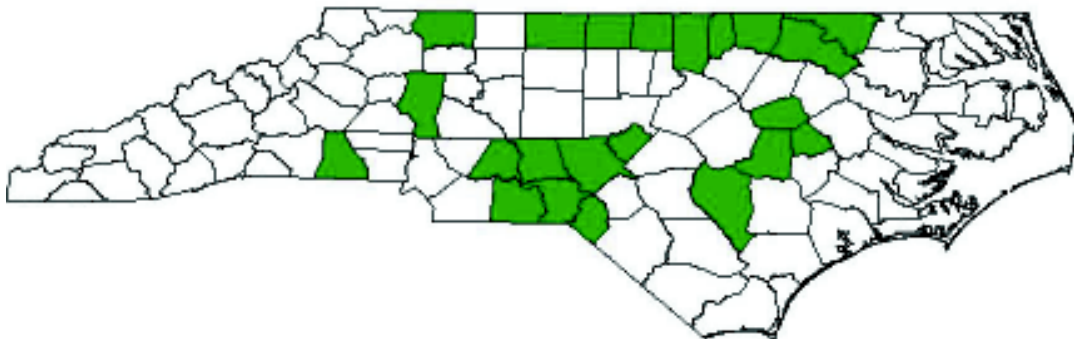
Figure 4. Percent Increase in Developed Area for Piedmont Urban Counties, 1982-2002



Piedmont Rural Counties

While most new development in the Piedmont region occurred near the major urban centers, rural counties also saw large percentage increases in developed land between 1982 and 2002. In total, rural counties of the Piedmont saw development increase 85% over that period, a total increase of 350,000 acres.

Correspondingly, Piedmont rural counties lost enormous quantities of open space in the past 20 years. 480,000 acres of cropland disappeared over that time along with 100,000 acres of forest land.



Map 9. Piedmont Rural

Figure 5. Acres of Cropland, Piedmont Urban Counties, 1982-2002

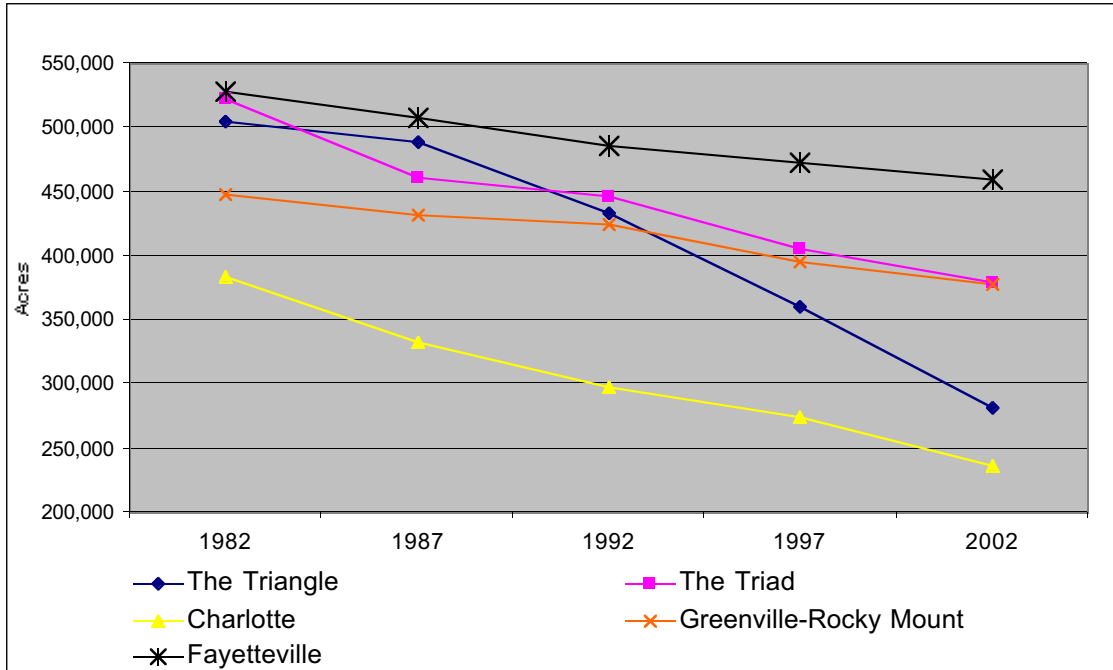
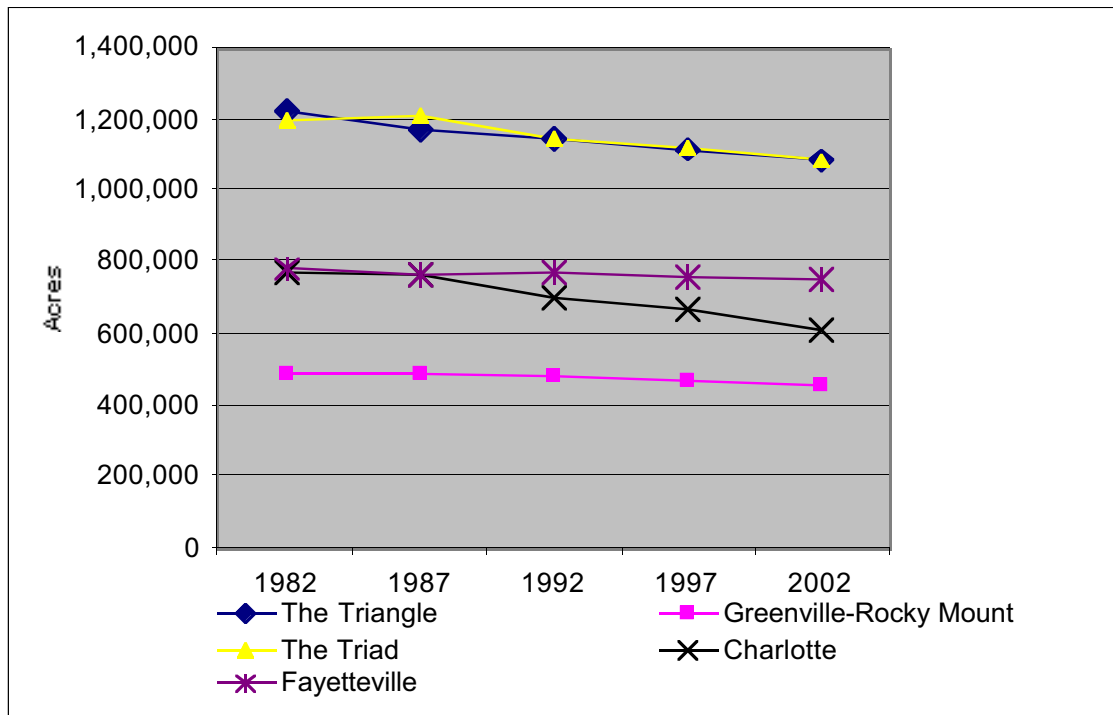


Figure 6. Acres of Forest Land, Piedmont Urban Counties, 1982-2002



The Coast

The North Carolina coast is famous for its beautiful beaches and natural areas, along with its historic towns and cities. From Roanoke Island, the site of the first English settlement in the Americas; Kitty Hawk, where the Wright brothers made their famous first flight; and Cape Hatteras, the first National Seashore; to the balmy southern region around Wilmington, the North Carolina coast is rich with historic and ecological heritage.

Unfortunately, like the urban areas of the Piedmont, North Carolina's coast is facing drastic changes. Between 1982 and 2002 the coastal counties of North Carolina lost 140,000 acres of cropland and 489,000 acres of woodland. Concurrently, coastal counties experienced a 67% increase in developed land, or 265,000 acres of development.

Coastal Urban Counties

The coastal counties around Wilmington and Jacksonville (Brunswick, Columbus,

New Hanover, Onslow, Pender), the major cities of the coastal region, have experienced substantial growth in the past two decades.

Wilmington-Jacksonville metro area counties added 114,000 acres of developed land, a 78% increase since 1982.

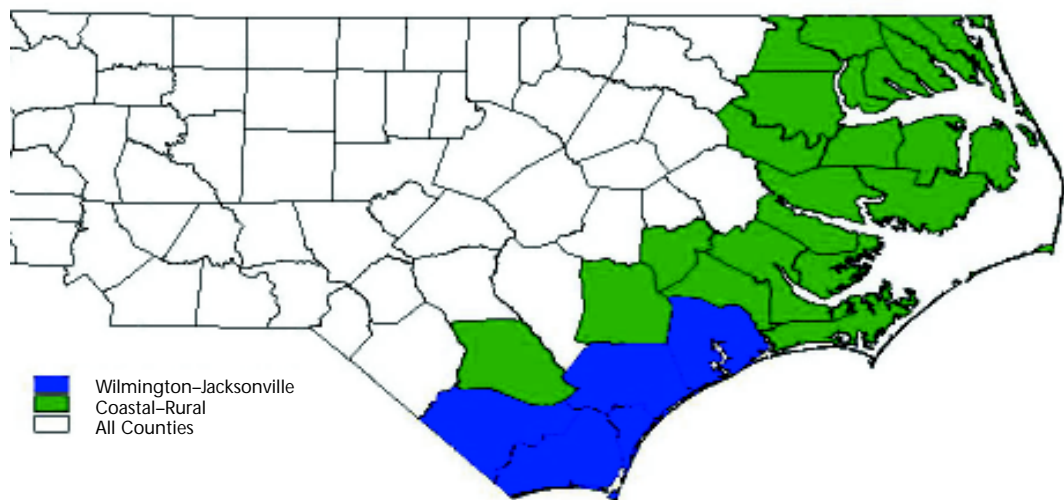
At the same time, the area lost 40,000 acres of farmland and 114,000 acres of forest land.



Coastal Rural Counties

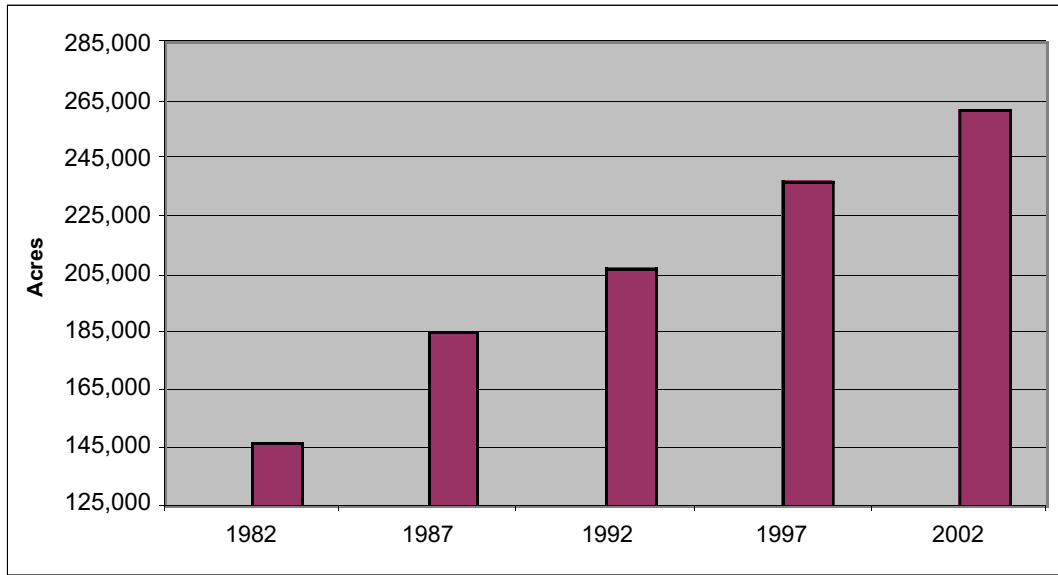
The rural counties of the North Carolina coast saw a similar transition in land use over the previous 20 years. Acres of developed land in these counties grew from 250,000 acres to 400,000 acres in that time period, an increase of 60%.

During the same time, rural coastal counties experienced a loss of 100,000 acres of cropland and 375,000 acres of forest land.



Map 10. The Coast

Figure 7. Acres of Developed Land in Coastal Urban Counties



Map 12. Coastal Rural Counties

The Mountains

North Carolina's mountain region is home to some of the most beautiful vistas and highest peaks east of the Rockies. Millions of tourists head to the mountains of North Carolina each year for rest and relaxation.

But the beauty of the mountains has attracted many new residents and a great deal of development in recent years. From retirees building their dream homes in golf course communities to urbanites from the Piedmont region building vacation retreats, the western mountains of North Carolina have become a favorite spot for new homes.

Developed land has increased 77% in the mountains in the last two decades, from 475,000 acres to 840,000 acres. During the same time, forest land acreage decreased by 280,000 acres (8%) and 167,000 acres of croplands (43%) were lost.

Asheville

Asheville, the largest city in the western mountains, is nestled in a picturesque valley in the southern Appalachians. The

mountain region's major population center is a favorite tourist destination for travelers visiting nearby Great Smoky Mountains National Park.



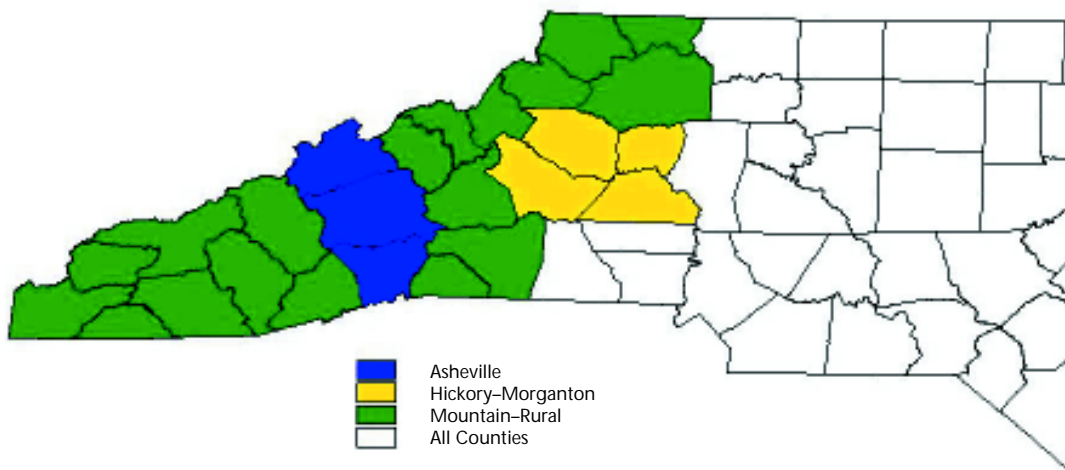
Asheville's heritage and scenic location have made it a hot new spot for development. Asheville's developed acreage grew 94% between 1982 and 2002, an increase of 77,000 acres. (See Figure 8.) Asheville metro area counties also lost 35% of their cropland in the last 20 years and 6% of their forested land, or 30,000 acres.

Hickory-Morganton

Hickory-Morganton, the only other metro area in the western

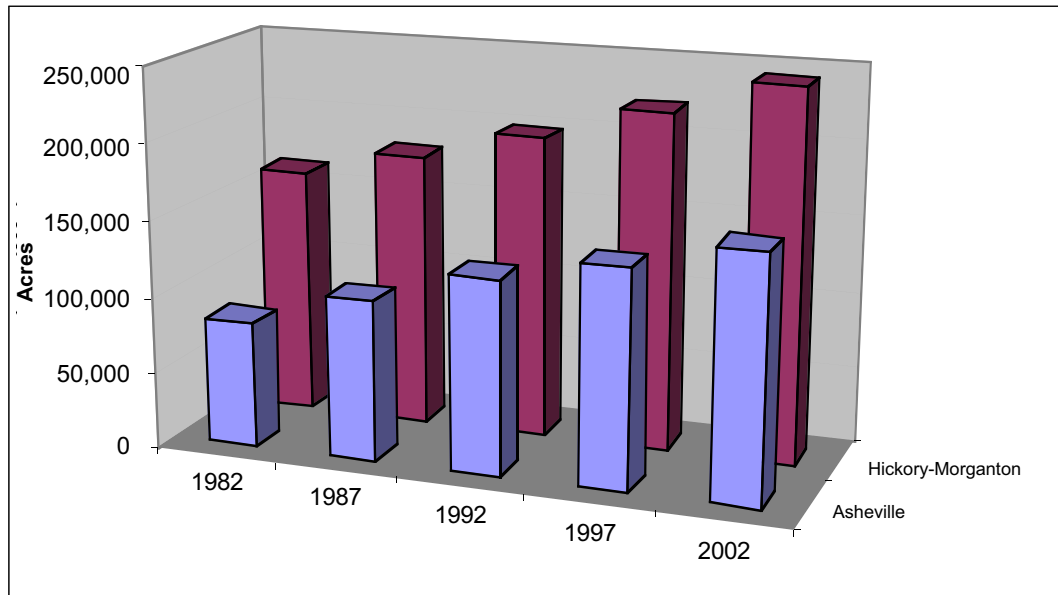
part of the state, experienced 50% growth in developed land. Hickory-Morganton saw

34% of its cropland and 9% of its forest land disappear, a total loss of nearly 50,000 acres.



Map 13. The Mountains

Figure 8. Acres of Developed Land, Mountain Urban Counties, 1982-2002

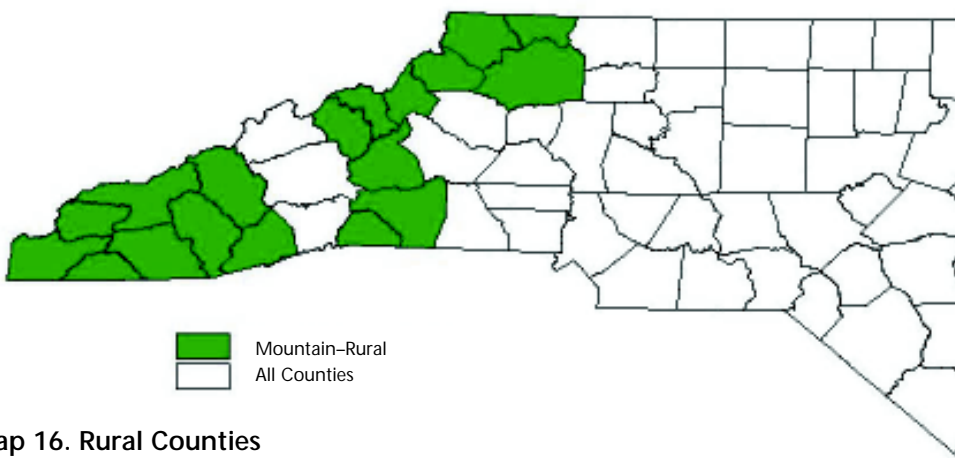


Rural Counties

Development in the mountains occurred at a greater rate in rural counties than in counties near urban areas, with developed land increasing 92% compared to only 64% in mountain urban counties near

Asheville and Hickory-Morganton.

Rural mountain counties added 207,000 acres of developed land in the previous 20 years. Simultaneously, those counties lost 103,000 acres of cropland and 202,000 acres of forest land, or 52% and 8% respectively.



Map 16. Rural Counties

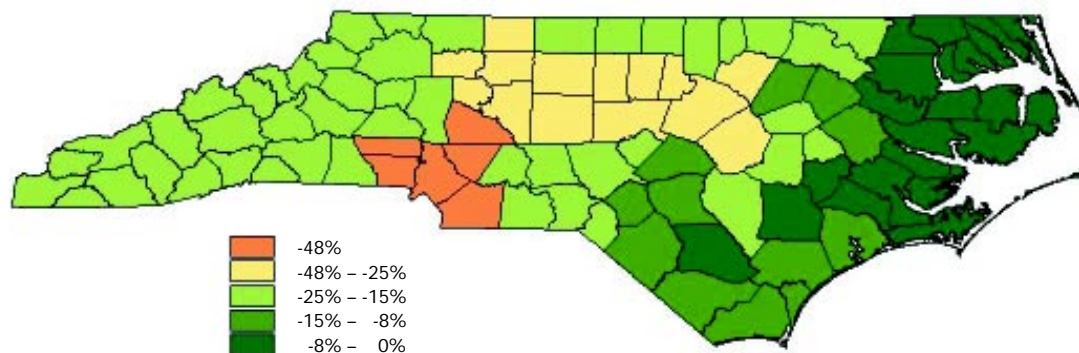
Projected Land Use Changes 2002-2022

If today's patterns of land use transformation continue, North Carolina will lose an additional 3.1 million acres of forest land and cropland in the next 20 years.

Land use transformation will be driven by development. Prodded by a booming population and low-density development projects, developed land area will increase by 2.4 million acres, an increase of 55% from 2002. (See Understanding the Data section for methodology of projections.)

Projected Open Space Loss

Rates of open space loss will continue at the highest rate in the Charlotte area, as well as the Triangle and the Triad. Charlotte will lose an additional 48% of its crop and forest land in the next twenty years. Both the Triangle and Triad regions will lose crop and forest land at high rates, losing 32% and 25% respectively.



Map 17. Projected Percentage Decrease in Total Forest and Cropland, 2002-2022

Figure 9. Projected Decrease in Open Space by County Grouping, 2002-2022

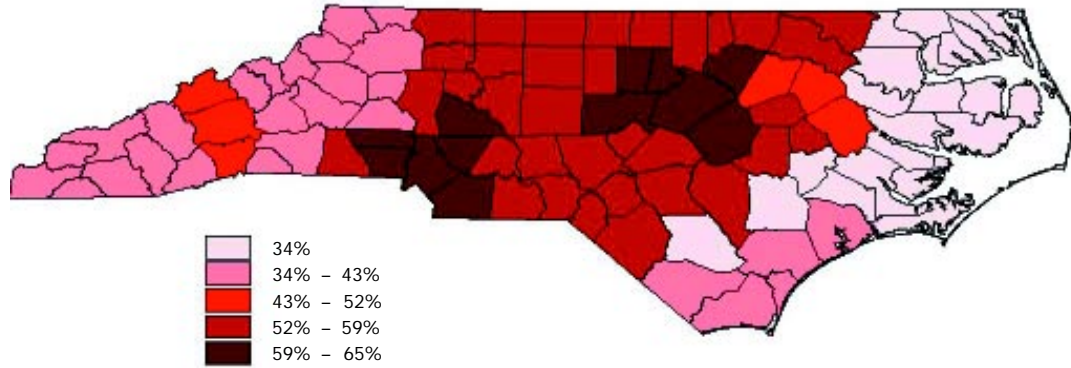
	Projected Cropland Acres Lost 2002-2022	% Change in Cropland Area 2002-2022	Projected Acres of Forest Land Lost 2002-2022	% Change in Forest Land Area 2002-2022
Piedmont Total	1,283,200	-41%	834,000	-11%
The Triangle	306,600	-109%	135,600	-13%
Greenville-Rocky Mt	65,700	-17%	40,000	-9%
The Triad	136,400	-36%	208,600	-19%
Charlotte	148,500	-63%	234,300	-38%
Fayetteville	84,000	-18%	16,000	-2%
Piedmont-Rural	542,000	-39%	199,300	-5%
Mountains Total	196,400	-90%	302,000	-10%
Hickory-Morganton	48,000	-62%	70,200	-14%
Asheville	18,600	-42%	47,900	-10%
Mountains-Rural	129,800	-136%	183,900	-8%
Coastal Total	197,300	-10%	352,700	-8%
Wilmington-Jacksonville	37,300	-13%	131,000	-8%
Coastal-Rural	160,000	-10%	221,700	-7%
Rural Total	831,800	-27%	604,900	-7%
Urban Total	845,100	-39%	883,600	-14%
Total	1,676,900	-32%	1,448,500	-9%

Projected Increase in Developed Land

In the next 20 years, development will again increase most rapidly in the Piedmont’s urban areas. The Charlotte area and the Triangle region will grow most rapidly,

followed by the remainder of the Piedmont’s urban and rural counties.

The western mountains will experience a growth rate of 44% in the next 20 years. The northern sections of the coastal region will grow at the slowest pace, increasing developed land area by 34%.



Map 18. Projected Increase in Developed Land, 2002-2022

Figure 10. Projected Increase in Developed Land by County Groupings, 2002-2022

	Projected Developed Acres Added 2002-2022	Projected % Increase in Developed Area 2002-2022
Piedmont Total	1,734,400	60%
Piedmont All Urban	1,283,400	60%
The Triangle	356,300	64%
Greenville-RM	76,700	49%
The Triad	319,500	57%
Charlotte	409,000	65%
Fayetteville	121,900	55%
Piedmont-Rural	451,000	59%
Mountains Total	373,000	44%
Mountains All Urban	186,000	46%
Asheville	84,200	52%
Hickory-Morganton	101,900	42%
Mountains-Rural	186,900	43%
Coastal Total	242,600	37%
Wilmington-Jacksonville	108,800	42%
Coastal-Rural	133,800	34%
Rural Total	771,700	48%
Urban Total	1,578,200	57%
Total	2,349,900	55%

Population and Development Rates

Rapid population growth and associated development have driven the rapid degradation of the North Carolina landscape over the last twenty years. However, development is not just a natural byproduct of our rising population; while population has increased 42% in the last twenty years, development has increased 82%.

This demonstrates a change in the pattern of development in North Carolina. Not only are more people coming into the state, but the amount of space being developed for each new person is growing.

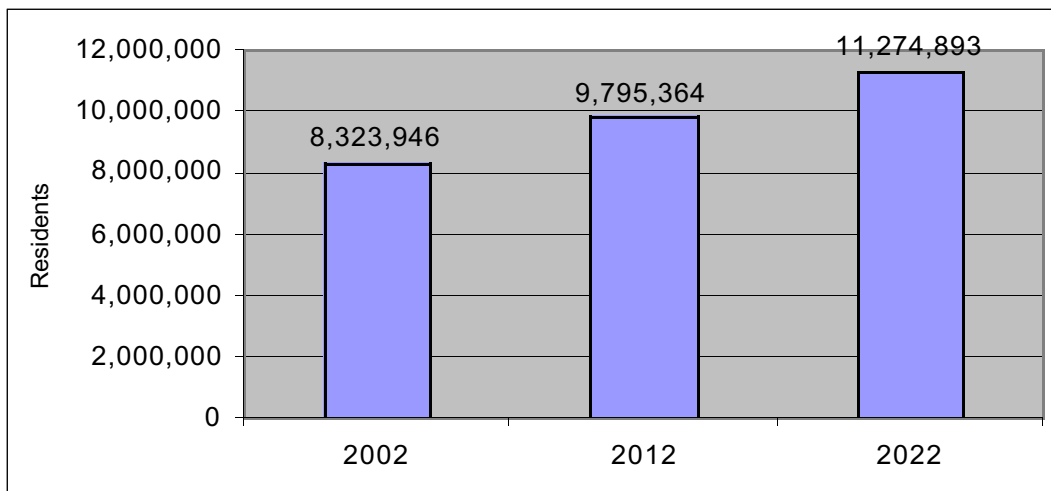
New sprawling patterns of development mean more open space will disappear in coming years. As sprawling development extends out from the suburbs of our urban areas, new developments are, on average, using more space than previous urban development would have for the same number of people. New sprawling development is using bigger roads, more parking lots, larger homes, more shopping malls.

All of that new development taking place on the suburban fringe is taking up more land—and most of that land is open space.

The good news is that while development has outpaced growth over the last 20 years, the rate of development per person in North Carolina appears to be retreating. In the mid-1980s, land was developed at a rate of 1.13 acres for each new person entering the state; by the mid-1990s that rate had fallen to seven-tenths of an acre per new resident.

The bad news is that despite the apparent decrease in development rates per person in recent years, census projections for the next 20 years predict an increase of 35%, or 3 million people. Thus even with declining per-person rates of development, future population growth will virtually guarantee that large tracts of land are developed, coinciding with large losses of open space.

Figure 11. North Carolina Population Projections



Policy Findings

Keeping the Million Acre Promise

Three years ago, in response to the state's vanishing open spaces, the General Assembly pledged to save 1 million acres of our open spaces by 2010. They designated four open space preservation programs to carry out their promise.

The Clean Water Management Trust Fund, the Parks and Recreation Trust Fund, the Natural Heritage Trust Fund, and the Farmland Preservation Trust Fund have been enormously successful in protecting the state's natural areas, from the Princess Ann Swamp on the Lumber River and the Little River Regional Park in Durham and Orange Counties, to the Little Tennessee River near Nantahala National Park. All told, the funds have protected more than 300,000 acres of forests, farmland, and other open space, and 1,500 miles of river and stream banks for less than \$390 million.¹

While these programs have been successful, the state is behind on its progress to save a million acres, with only 150,000 acres protected in the last 3 years.² Meanwhile, the recent budget crisis has threatened funding of the programs. For FY04, the Clean Water Management Trust Fund received a 38% cut from its original allocation, while the Farmland Preservation Trust Fund received no funds at all. With incoming revenue standing a chance to fall short of projections, the temptation will be to cut these programs even further.

Even at full funding levels, existing land

conservation programs are not enough to reach the million acres goal. To do so, we'll need an additional \$1.2 billion over the next seven years, or \$176 million each year.³ A portion of this funding could come from developer and realty fees, and will enable direct government purchases; a small amount can come from tax incentives for private landowners to conserve their land.

North Carolina's leaders should take steps to:

- Protect our natural resource trust funds from severe budget cuts.
- Establish a permanent, dedicated source of open space protection funding.
- Add to existing tax incentives for land conservation and to penalties for development.
- Expand the number of tools available to local governments to protect open spaces.

Our open space programs are fiscally responsible: they have already saved over 300,000 acres in the last 17 years with less than 1% of the state's overall budget. And investing in open space protection will aid one of the state's largest industries, tourism, which contributes \$12 billion annually to the economy and draws 43 million visitors each year.⁴ Spending money through tax incentives and appropriations now to protect our open spaces for future generations will improve quality of life and the economy.

Appendix A

Figure 12: Data for Increase in Developed Area by Study Area, 1982-2002

	1982 Developed Land Area	2002 Developed Land Area	Total Acres Developed 1982-2002	% Change in Developed Area
The Triangle	259,600	561,068	301,500	116%
Greenville-Rocky Mount	81,100	157,200	76,100	94%
The Triad	340,100	557,000	216,900	64%
Charlotte	326,400	627,900	301,500	92%
Fayetteville	125,400	223,200	97,800	78%
Piedmont Rural Counties	413,500	766,800	353,300	85%
Piedmont Total	1,546,100	2,893,100	1,353,400	87%
Wilmington-Jacksonville	146,800	261,600	114,800	78%
Coastal Rural Counties	249,900	399,100	149,200	60%
Coastal Total	396,700	660,700	265,000	67%
Asheville	82,900	160,600	77,700	94%
Hickory-Morganton	163,700	243,700	80,000	49%
Mountains-Rural	227,300	434,500	207,200	91%
Mountains Total	473,900	838,800	364,900	77%
Rural	890,700	1,600,300	710,000	80%
Urban	1,526,000	2,792,200	1,266,000	83%
Total	2,416,700	4,405,000	1,975,000	82%

Appendix B

Figure 13: Data for Loss of Open Space by Study Area, 1982-2002

	1982 Cropland Area	2002 Cropland Area	Total Cropland Lost 1982-2002	% Change in Cropland Land Area 1982-2002	1982 Forest Land Area	2002 Forest Land Area	Total Forest Land Lost 1982-2002	% Change in Forest Land Area 1982-2002
The Triangle	504,500	282,400	-222,100	-44%	1,223,500	1,083,000	-140,493	-11%
The Triad	522,500	378,700	-143,800	-28%	1,197,300	1,082,400	-114,890	-10%
Charlotte	384,000	236,900	-147,100	-38%	767,700	611,600	-156,071	20%
Greenville-Rocky Mount	448,400	378,500	-69,900	-16%	487,400	454,600	-32,831	-7%
Fayetteville	528,700	459,700	-69,000	-13%	782,500	752,400	-30,129	-4%
Piedmont Rural Counties	1,879,000	1,397,300	-481,700	-26%	3,928,800	3,827,800	-100,951	-3%
Piedmont Total	4,267,100	3,126,000	-1,140,900	-27%	8,387,200	7,811,000	-576,211	-7%
Asheville	69,600	44,200	-25,400	-36%	488,500	459,500	-28,971	-6%
Hickory-Morganton	117,300	77,200	-40,100	-34%	550,600	501,600	-48,992	-9%
Mountains-Rural	198,400	96,800	-102,600	-52%	2,415,000	2,213,200	-201,761	-8%
Mountains Total	385,300	218,000	-167,300	-43%	3,454,100	3,175,300	-278,825	-8%
Wilmington-Jacksonville	334,000	294,000	-40,000	-12%	1,679,700	1,564,700	-114,959	-7%
Coastal-Rural	1,711,500	1,610,800	-100,700	-6%	3,438,800	3,065,100	-373,745	-11%
Coastal Total	2,045,500	1,902,700	-142,800	-7%	5,118,500	4,627,700	-490,845	-10%
Rural Total	3,788,900	3,103,900	-685,500	-18%	9,782,600	9,106,100	-684,559	-7%
Urban Total	2,909,000	2,147,000	-760,800	-26%	7,177,200	6,509,900	-671,791	-9%
Totals Total	6,697,900	5,242,500	-1,455,400	-22%	16,959,800	16,320,300	-1,362,534	-8%

Appendix C

Figure 14 a and b. Ranks of Study Areas by Projected Open Space Loss 2002-2022

Region	% Change in Cropland Area		Region	% Change in Forest Land Area	
	Rank	Area		Rank	Area
Mountains-Rural	1	136%	Charlotte	1	38%
The Triangle	2	109%	The Triad	2	19%
Charlotte	3	63%	Hickory-Morganton	3	14%
Hickory-Morganton	4	62%	The Triangle	4	13%
Asheville	5	42%	Asheville	5	10%
Piedmont-Rural	6	39%	Greenville-Rocky Mount	6	9%
The Triad	7	36%	Mountains-Rural	7	8%
Fayetteville	8	18%	Wilmington-Jacksonville	7	8%
Greenville-Rocky Mount	9	17%	Coastal-Rural	9	7%
Wilmington-Jacksonville	10	13%	Piedmont-Rural	10	5%
Coastal-Rural	11	10%	Fayetteville	11	2%

Figure 14c. Ranks of Study Areas by Projected Increase in Developed Area 2002-2022

Region	Rank	% Change in Developed Area
Charlotte	1	65%
The Triangle	2	64%
Piedmont-Rural	3	59%
The Triad	4	57%
Fayetteville	5	55%
Asheville	6	52%
Greenville-Rocky Mount	7	49%
Mountains-Rural	8	43%
Hickory-Morganton	9	42%
Wilmington-Jacksonville	9	42%
Coastal-Rural	11	34%

Endnotes

1. Friends of the Funds, *Land and Water Conservation Lobby Day Fact Sheet*, April 2003.
2. North Carolina Department of Environment and Natural Resources, *Million Acre Initiative: Our Progress*, downloaded from www.ils.unc.edu/parkproject/maint/progress/progress.html, 7 May 2003.
3. Environmental Finance Center at UNC-Chapel Hill, *North Carolina State Agency Conservation Funding Needs Assessment*, 16 April 2003.
4. North Carolina Department of Commerce, Division of Tourism, downloaded from www.nccommerce.com/tourism, July 2003.

