



## Mapping Food Insecurity and Food Sources in New Hampshire Cities and Towns

BARBARA WAUCHOPE AND SALLY K. WARD

The economic recession has left families throughout New Hampshire with fewer resources to buy the food they need to stay healthy and avoid food insecurity or hunger. Parents struggling with unemployment and declining incomes face challenges in feeding their children. In more rural parts of the state, access to food, particularly affordable, nutritious food, may be limited by the need to travel long distances to grocery stores. The cost of transportation and relative lack of public transportation options, especially in rural areas, add to the challenge of access to food. Even when retail food stores are accessible, the type of food available may be processed or snack foods with few healthy foods offered, particularly fresh fruits and vegetables. Public programs are available to supplement families' food needs, but these may not be easily accessible to those who need them most.

To address this problem, the Children's Alliance of New Hampshire is spearheading New Hampshire Hunger Solutions, a statewide initiative working to improve children's nutrition and end childhood hunger in New Hampshire. To guide the initiative's planning process, the Children's Alliance partnered with Food Solutions New England to convene the New Hampshire Food Advisory Council, a diverse coalition of anti-hunger and child advocates, state agencies, farmers, and business and community leaders. The council is developing a roadmap of strategies to share with government and human services agencies, policymakers, and families struggling with food insecurity or hunger. One of the first steps is to identify where the need is greatest in the state and where there are gaps in resources.

Using a series of detailed New Hampshire maps, this brief presents a geographic picture of the towns and cities at risk for food insecurity as well as the food resources available across the state. By detailing places with high food insecurity risk and comparing them to places where food is available, these maps show areas of unmet need. This information will enable organizations partnering with New Hampshire Hunger Solutions to identify where initiatives addressing food insecurity and hunger could have the greatest potential impact. A glossary on page 2 provides information about food programs and retail food sources.

**Map 1** identifies by town the distribution of families at risk for food insecurity in 2010.<sup>1</sup> Food insecurity is a condition of people when "access to adequate food is limited by a lack of money and other resources."<sup>2</sup> Previous research on New Hampshire<sup>3</sup> found that food insecurity is predicted by two factors: the percent of families living at 100 percent of the federal poverty level<sup>4</sup> and distance to travel for food sources. To estimate the risk for food insecurity at the town/city level for this map, we overlapped these two indicators, substituting an available measure, population density, for distance to travel for food sources. Each indicator is divided into three categories. Families living in the most rural towns (with the smallest population

### Key Findings

- Based on two risk factors, 57 of the 234 towns and cities in New Hampshire are at highest or high risk of food insecurity, with most located in the northern and western regions of the state.
- Public food programs are available in most towns across the state but are concentrated, along with retail food outlets, in the southern towns and cities.
- Families in most towns at highest or high risk for food insecurity have access to some type of public food program, but because of their more rural locations, the retail or public program options available to them are limited.

densities of 2-99 persons per square mile) are indicated by cross-hatching. Towns with the largest percentage of families living below the federal poverty level (10 percent and greater) are shown in red. A scale of Food Insecurity Risk was created by combining the two indicators. Towns in the *highest risk* of food insecurity category (indicated by red with cross-hatching) are those with the largest percentage of families in poverty and located in the most rural areas, that is, with the smallest population densities.<sup>5</sup> Because poverty is a stronger risk factor than population density, we classified two combinations as *high risk*: towns with the largest percentage of families in poverty combined with moderate population density (red lined), and towns with the middle percentage of families in poverty combined with smallest population (beige with crosshatching). Manchester, the one city in the state with a large percentage of families living in poverty, is classified as *moderate risk* because it also has a high population density which increases access to food despite the poverty. The findings below focus only on the towns in the *highest* and *high risk* categories.

**Maps 2 to 5** describe the state and regional distribution of a variety of retail food outlets, places where families can purchase food from vendors including grocery, convenience and fresh food specialty stores; farm food outlets, and non-traditional food stores such as pharmacies and so-called dollar stores. These are all places where a substantial portion of the vendor's space is used to sell food and beverages; quality of goods sold was not assessed.

**Maps 6 to 9** indicate locations where children and youth can obtain free or subsidized food at schools, child care centers and homes, afterschool programs, and parks and camps during the summer months through the federally funded child nutrition programs. The maps also show retail stores where families can obtain food through federally funded supplemental assistance programs such as Food Stamps and WIC, and privately and municipally funded food pantries where families may obtain food at no cost. A brief description of each program can be found in the glossary.

**Map 10** identifies all the municipalities in the state and is provided as a reference for Maps 1 to 9.

### Glossary of Programs and Retail Food Sources<sup>6</sup>

**Afterschool Snack Program**—A federal child nutrition program, part of the National School Lunch Program, that reimburses school-sponsored afterschool programs for providing healthy snacks to children.

**Child and Adult Care Food Program**—A federal child nutrition program that reimburses sponsored child care centers, family child care homes, afterschool programs, and homeless shelters for providing nutritious meals and snacks to children.

**Convenience stores**—Primarily sell snack foods and beverages but also sell some processed, frozen, and occasionally fresh foods.

**Farm food outlets**—Include farm stands, farmers' markets, and fee-based programs such as Community Supported Agriculture (CSA).

**Food pantries**—Public or private nonprofit organizations, typically municipalities and churches, that distribute food to low-income and unemployed households to relieve situations of emergency and distress. The New Hampshire Food Bank supplies food to many of the food pantries in the state.

**Fresh food retail outlets**—Include retail specialty food stores such as bakeries, as well as fish, meat, and produce markets.

**Fresh Fruit and Vegetable Program**—A federal child nutrition program that pays schools to offer children fresh fruit and vegetable snacks while attending school.

**Grocery stores**—Include supermarkets, discount club stores, and smaller grocery stores.

**National School Lunch Program**—A federal child nutrition program that can include participation in the School Breakfast Program, that reimburses schools for providing free and reduced-price meals to low-income children.

**Non-traditional food outlets**—Include pharmacies and so-called dollar stores that sell a range of processed and frozen foods.

**Summer Food Service Program**—A federal child nutrition program that reimburses local government agencies or nonprofit organizations that provide meals and snacks to children in the summer.





**Supplemental Nutrition Assistance Program (SNAP)**—A federal program that provides monthly benefits to eligible low-income families which can be used to purchase food. In New Hampshire SNAP is known as the Food Stamp Program.

**Special Supplemental Nutrition Program for Women, Infants, and Children (WIC)**—A federal program that provides low-income pregnant women, new mothers, infants, and children with nutritious foods, nutrition education, and improved access to health care in order to prevent nutrition-related health problems in pregnancy, infancy, and early childhood.




MAP 1. VARIATION IN RISK FOR FOOD INSECURITY IN NEW HAMPSHIRE CITIES AND TOWNS, 2010

**Population Density**










Persons per square mile

-  2 - 99
-  100 - 499
-  500 - 3292
-  Data unavailable

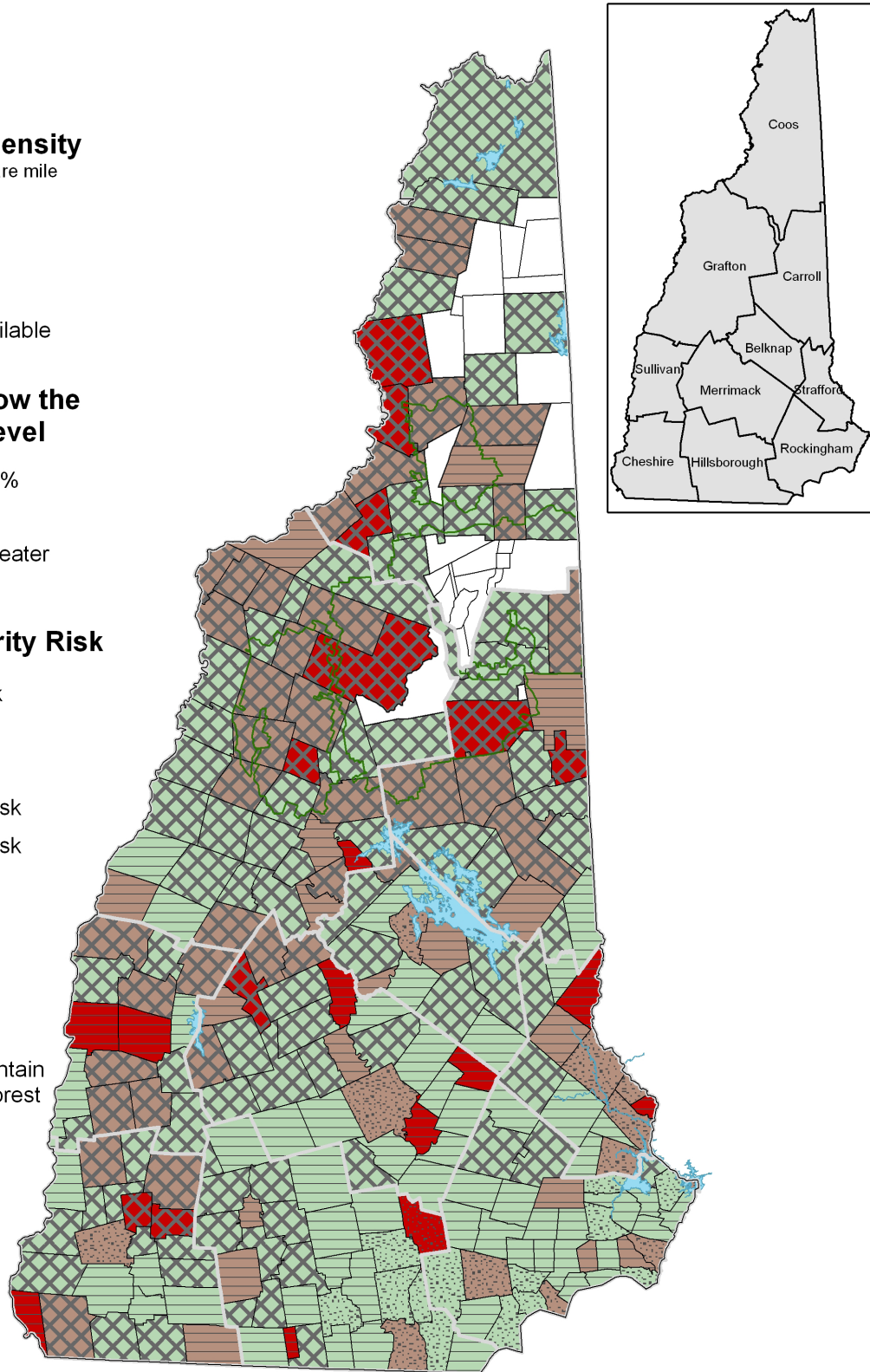
**Families Below the Poverty Level**

-  Less than 5%
-  5% to 10%
-  10% and greater

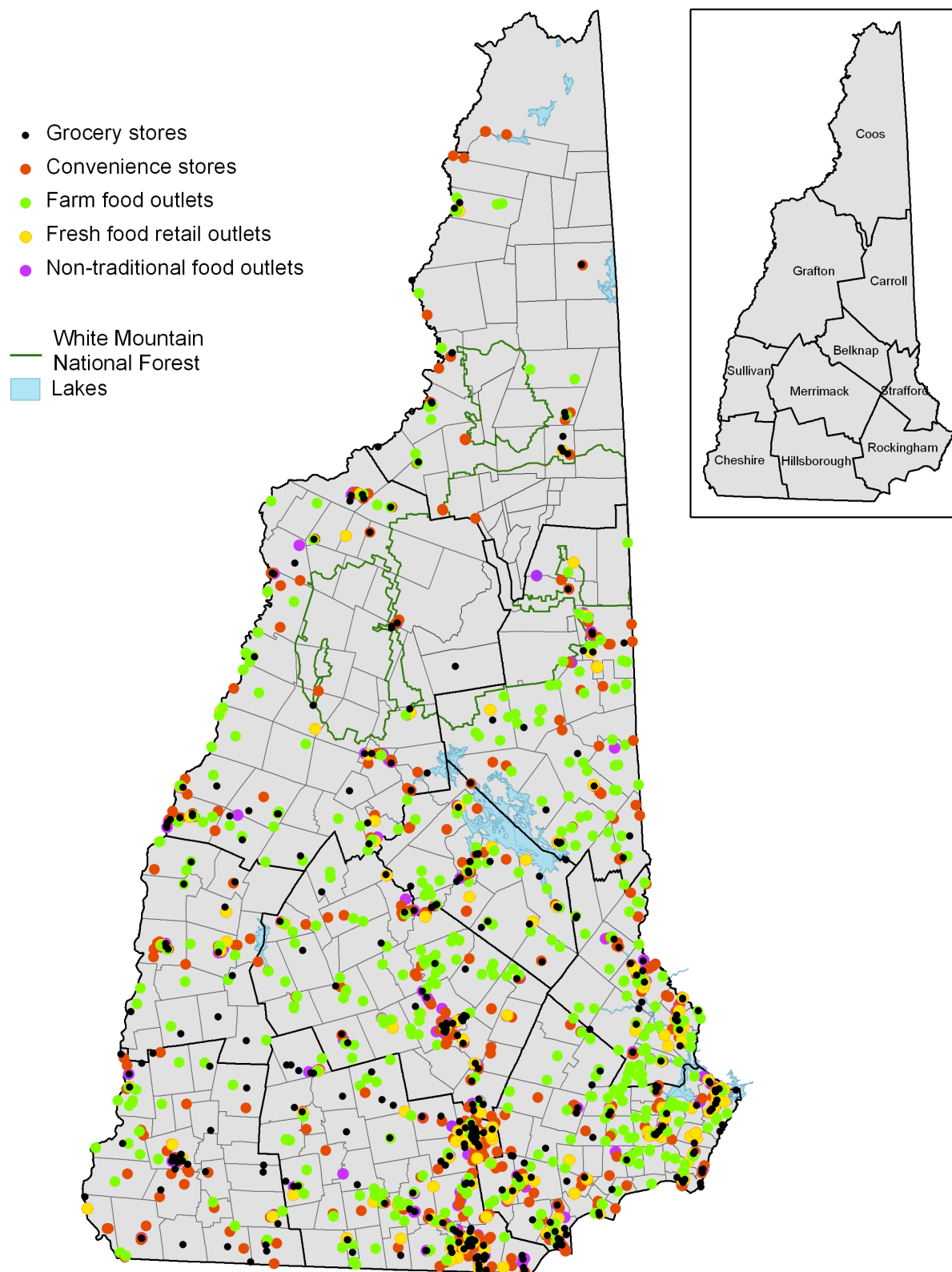
**Food Insecurity Risk**

-  Highest risk
-  High risk
-  High risk
-  Moderate risk
-  Moderate risk
-  Low risk
-  Lowest risk
-  Lowest risk
-  Lowest risk

-  White Mountain National Forest
-  Lakes

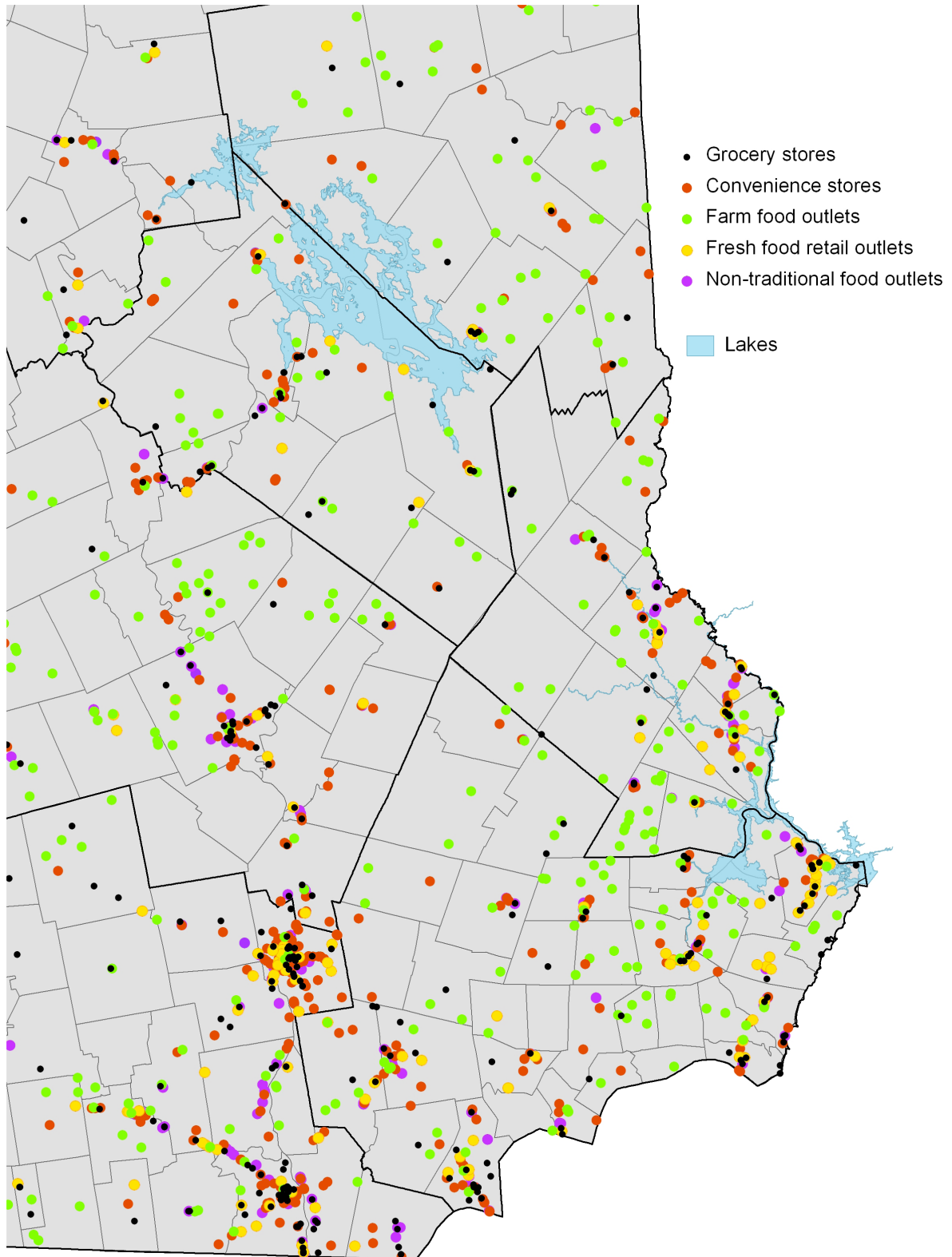


MAP 2. RETAIL FOOD SOURCES IN NEW HAMPSHIRE CITIES AND TOWNS, 2011

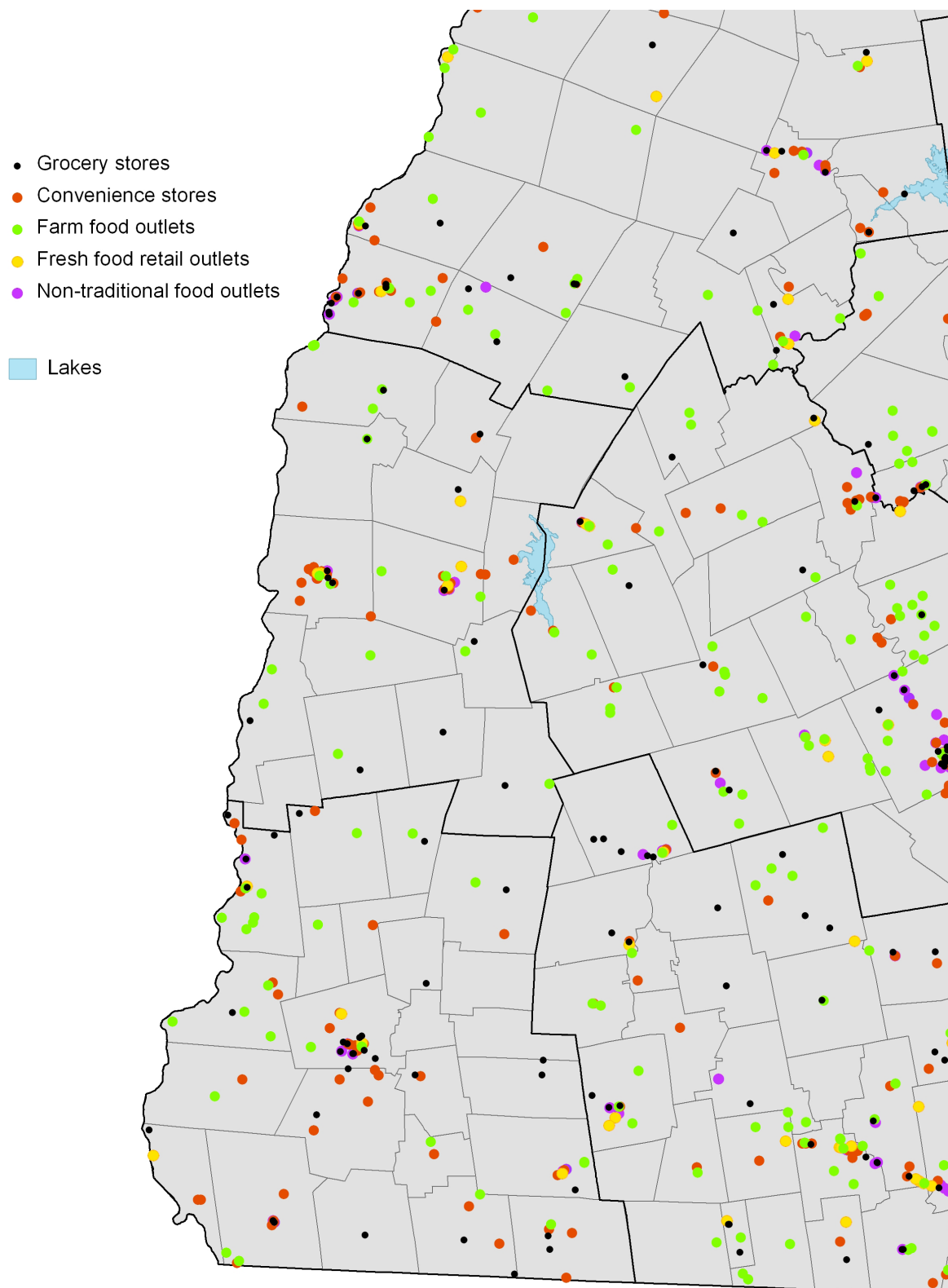




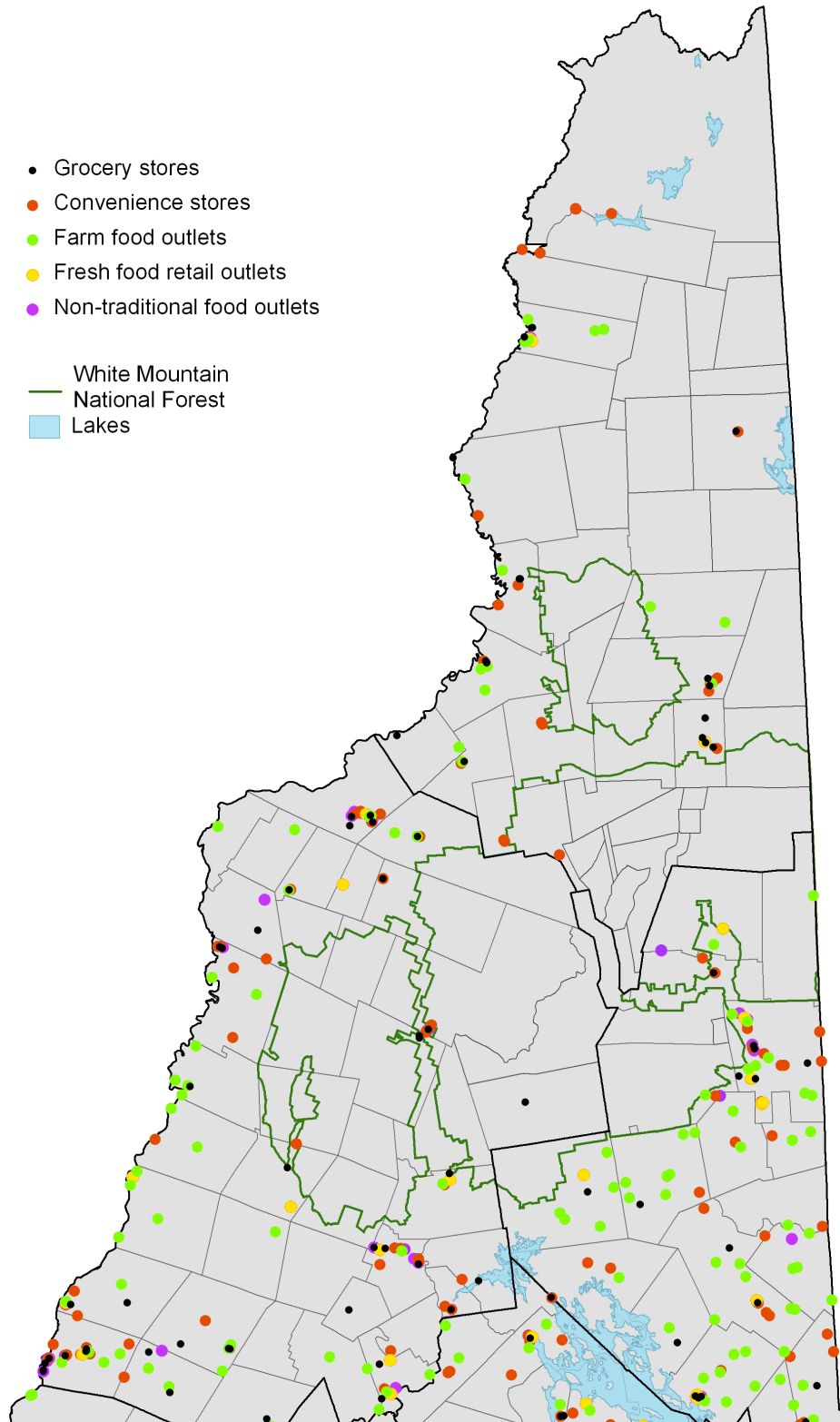
MAP 3. RETAIL FOOD SOURCES IN NEW HAMPSHIRE CITIES AND TOWNS—SOUTHEASTERN REGION, 2011



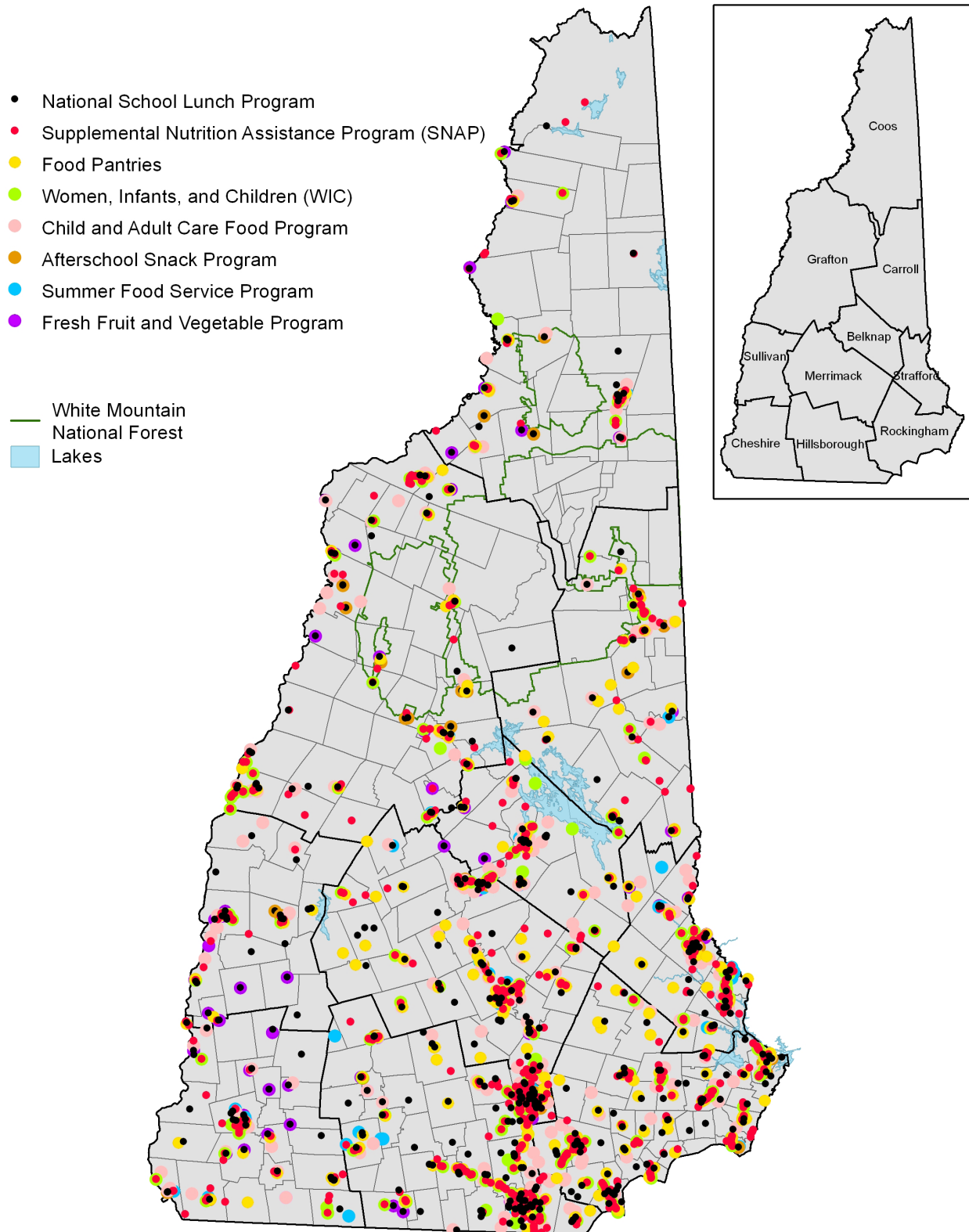
MAP 4. RETAIL FOOD SOURCES IN NEW HAMPSHIRE CITIES AND TOWNS—SOUTHWESTERN REGION, 2011



MAP 5. RETAIL FOOD SOURCES IN NEW HAMPSHIRE CITIES AND TOWNS—NORTHERN REGION, 2011

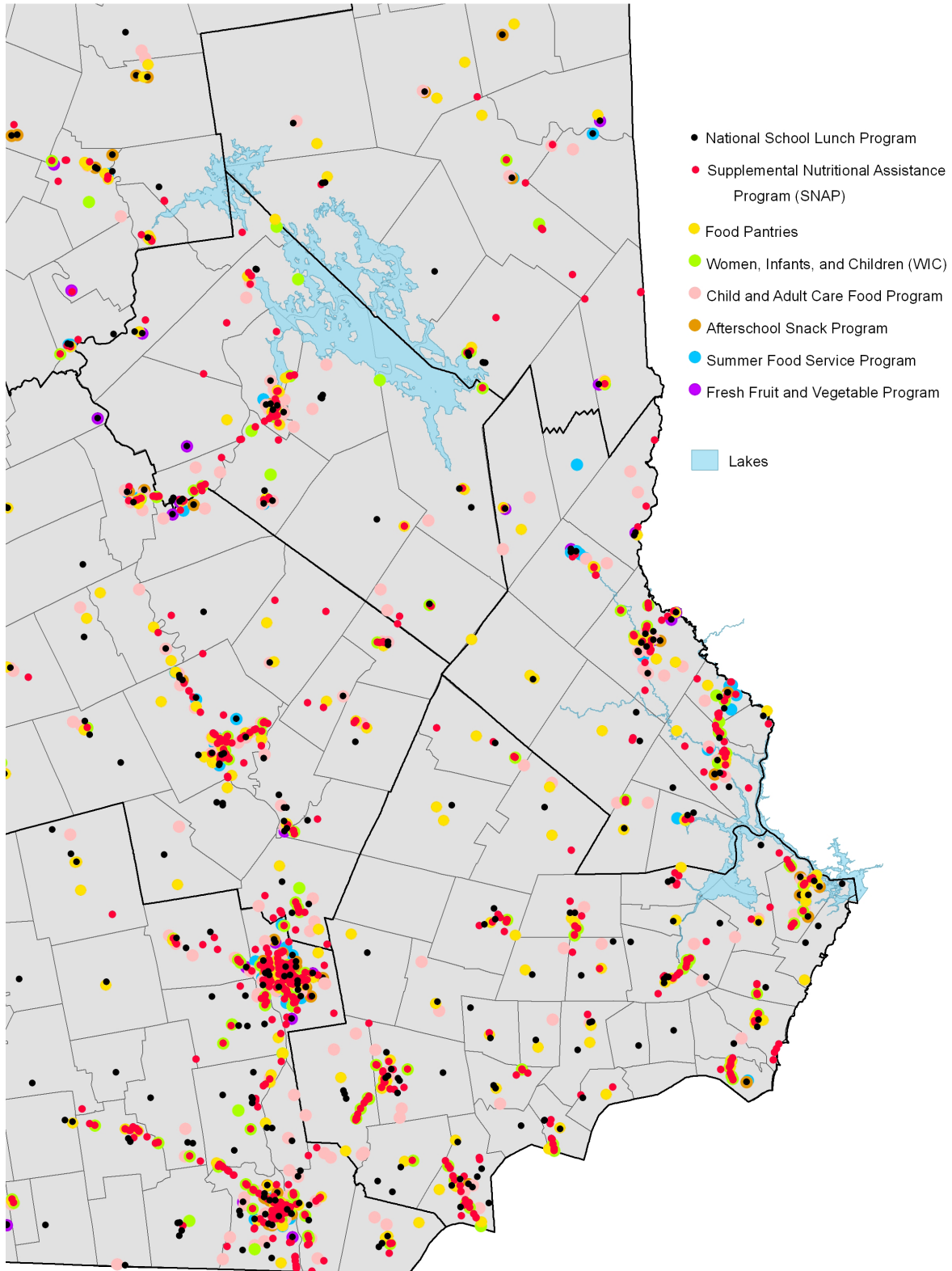


MAP 6. PUBLIC FOOD SOURCES IN NEW HAMPSHIRE CITIES AND TOWNS, 2011

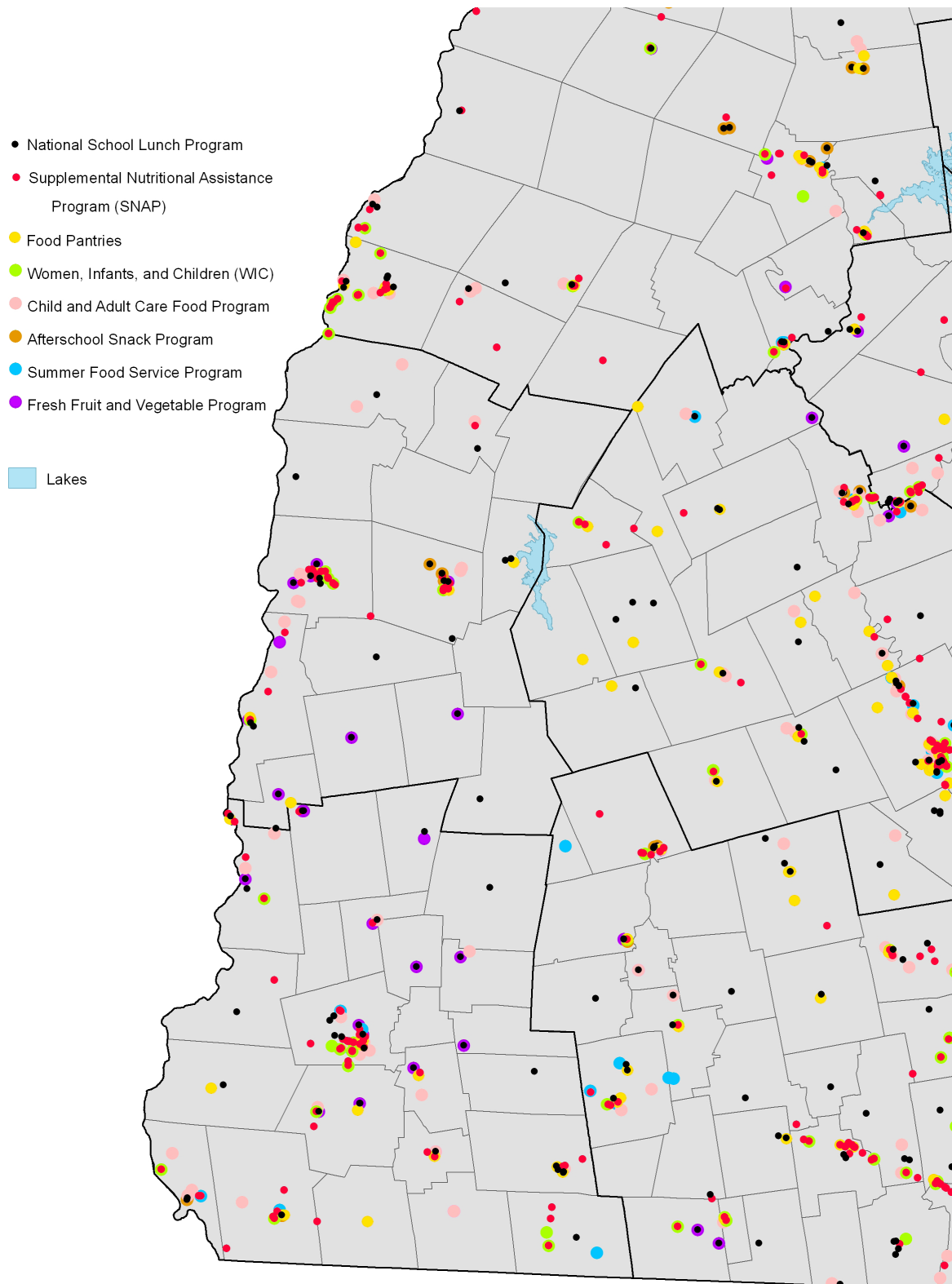




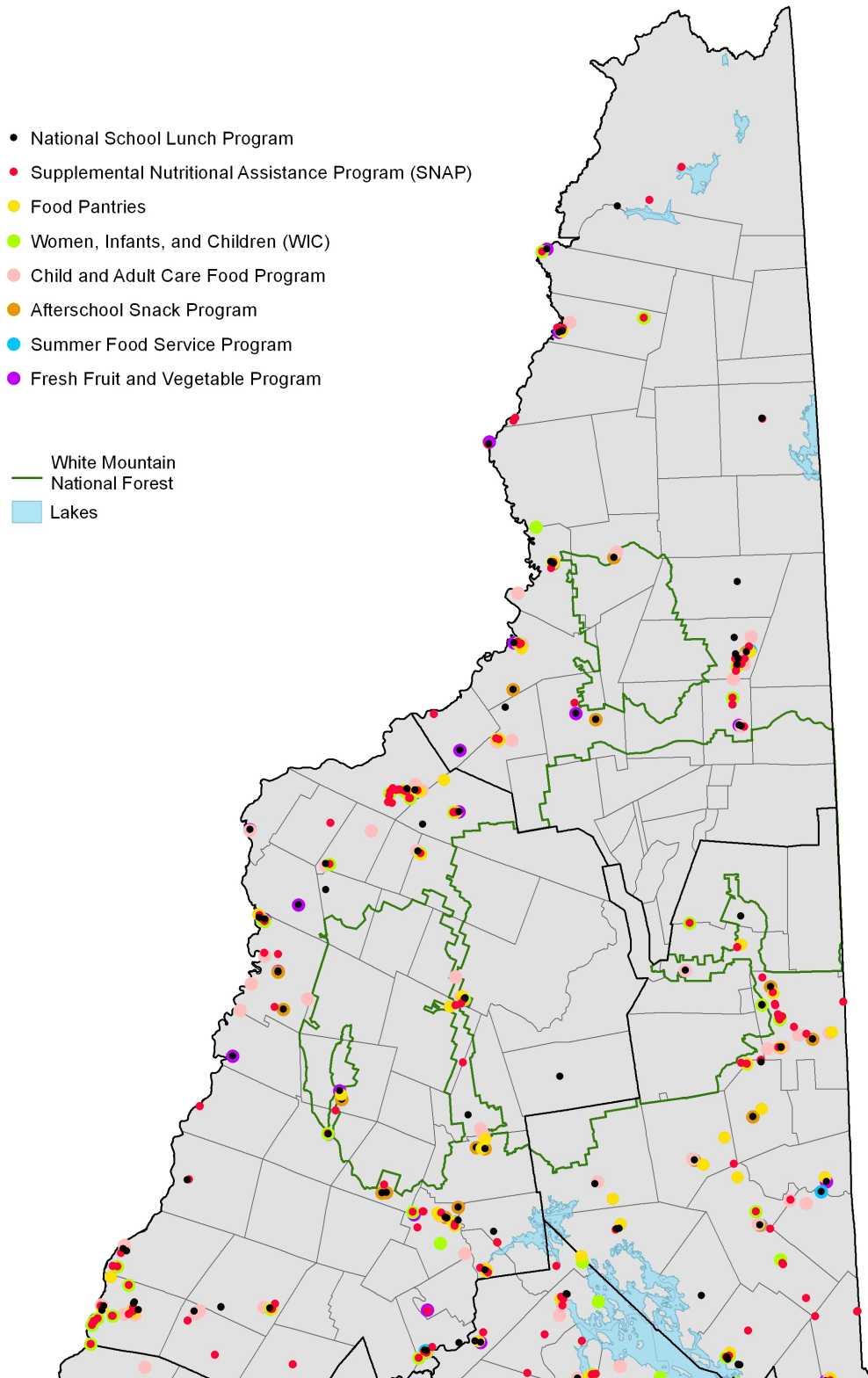
MAP 7. PUBLIC FOOD SOURCES IN NEW HAMPSHIRE CITIES AND TOWNS—SOUTHEASTERN REGION, 2011



MAP 8. PUBLIC FOOD SOURCES IN NEW HAMPSHIRE CITIES AND TOWNS—SOUTHWESTERN REGION, 2011



MAP 9. PUBLIC FOOD SOURCES IN NEW HAMPSHIRE CITIES AND TOWNS—NORTHERN REGION, 2011



## Findings

### Local Risk for Food Insecurity

In New Hampshire there are pockets of serious poverty throughout the state (indicated by red on Map 1). Rural or low density population towns are even more widespread. Using the scale of food insecurity risk that combines these two risk factors, fifty-seven towns can be identified with both the largest percentage of families living in poverty and the lowest or moderate density populations (red crosshatching, red lined, or beige crosshatching). These towns are categorized as at *highest* or *high risk* of food insecurity and are located primarily in the northern and western regions of the state. Using this scale, ten towns are categorized as at *highest risk*, that is, with the greatest rates of poverty and smallest population densities. They are located in Cheshire, Merrimack, Carroll, Grafton, and Coös counties. Over half (53 percent) of the towns in Sullivan county, 48 percent of Coös county's towns, and 42 percent of the towns in Grafton county are at *highest* or *high risk* for food insecurity. By contrast, in the southeast region, no towns in either Hillsborough or Rockingham are categorized as *high* or *highest risk*.

Although rural, some of these *highest* and *high risk* categorized towns are on the edge of a populous town or city at *low* to *moderate risk*. For example, Albany and Eaton abut Conway; Nelson and Sullivan are next to Keene; Wilmot is adjacent to New London; Milton touches Rochester; and Pembroke is next to Concord. Among the towns categorized as at *highest risk*, Whitefield, with 2,306 people, is the largest. Claremont, with 13,355, has the largest population of the towns categorized as *high risk*, followed by Franklin at 8,477. Manchester, by this set of measures, is categorized as at *moderate risk* due to its urban population density, but it is important to note that it has neighborhoods that are at serious risk of food insecurity due to poverty alone.

### Access to Retail Food Sources

New Hampshire has a diversity of retail food outlets. However, these different sources tend to cluster together in population centers. Places with one type of food source, such as a grocery store, tend to have additional sources for food as well—for example, other grocery stores, convenience stores and specialty food stores—often within blocks of each other.

The density of retail food sources is highest in the southern, most populous part of the state, especially along the Massachusetts border and in the cities of Manchester, Nashua, Salem, and along the seacoast. Multiple sources are most frequent along the Interstate 93 corridor from the Massachusetts border to Concord and the Lakes Region. The lack of retail food options is most common in the northern one-third of the state. In some particularly isolated places, the only option is convenience stores and/or farm food.

### Access to Public Food Programs

The National School Lunch Program, a major source of meals for children, is embedded in almost every public school and many private schools in the state. With the exception of the Summer Food Service Program, the other public food program sites and food pantries are available in every county of the state, if not in every town. Sites are concentrated in the most populous southeast region of New Hampshire, clustering in the same pattern as retail sources of food along highway corridors and in the most populous towns and cities. For two programs, Supplemental Nutrition Assistance Program (SNAP) and Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), this is no accident since families relying on these programs use Electronic Benefit Transfer (EBT) cards or vouchers at retail outlets. Their ability to obtain affordable food is dependent on the availability of retail stores in their area that participate in the programs.

### Risk, Access, and Affordability

Map 1 identifies towns at risk for food insecurity, based on poverty and population density. When Map 1 is overlaid with information from Map 2, locations of retail establishments where food can be purchased, we find that, overall, people living in the more rural places have more limited options for purchasing food with fewer grocery stores but more convenience stores and retail farm food, particularly in the northern and southwestern regions. Only a handful of towns categorized as at *highest* and *high risk* of food insecurity have no retail food sources at all, but 43 percent have only local convenience stores or farm food and lack a grocery store, including Stratford, Ellsworth, Albany, Eaton, Wilmot, Unity, Lyman, Nelson, and Milton. On the other hand, there are many farm stands and other farm-based food sources across the state that are the only retail food source in some of these towns. Many towns at *highest* or *high risk* of food insecurity across the state are, as noted above, adjacent to more populated areas where retail stores concentrate or are located on major thoroughfares leading to these areas.

The availability of public food sources should increase families' access to food. When Map 6, location of public food sources, is overlaid on the other two maps, we find that there are public food sources distributed across the state in most of the towns categorized as at *high* and *highest risk* of food insecurity. Overall, their locations generally follow the same population-driven pattern as retail establishments with fewer sites in more rural areas. However, public sites are more numerous in rural towns than grocery stores, though not necessarily more than convenience stores or retail farm food. In particular, almost all school districts participate in the National School Lunch Program and its associated school-based programs such as the School Breakfast Program, Fresh Fruit and Vegetable



Program, and Afterschool Snack Program. Consequently, free meals and snacks are available to children in some of the poorest and most rural towns in the state. Similarly, the SNAP and the WIC food program sites are also widespread throughout the state, particularly in the more populated areas where grocery stores and convenience stores are located, if not in all the adjacent towns identified as at risk of food insecurity.

## Conclusion

The purpose of this brief is to display where in New Hampshire people can go to stores and public food distribution sites to obtain food, and then to examine how this correlates with towns where the risk for food insecurity is greatest. Despite the fact that New Hampshire is a relatively affluent state, there are pockets of poverty. This, coupled with the rural character of much of the state, increases the likelihood that families will experience food insecurity.

Some of the places that are most vulnerable to food insecurity appear to have a deficit of food sources both private and public. Both the quantity and quality of retail food sources and the availability of public food program sites decline with lower population density. In many places families have only one or at most two local places they can go for food, sometimes only a farm stand selling produce or a convenience store with limited fresh food, or the free meals offered at school, requiring them to travel some distance to purchase or obtain a broader range of foods. For towns like these, expansion of retail food outlets through the availability of economic incentives could increase families' access to food and their ability to obtain food affordably through SNAP and WIC. Similarly, increasing the number of farm food outlets offering these programs, given the large number of them located in rural towns, could increase rural families' access to nutritious produce. Also, because public programs tend to target specific age groups or are offered only at certain times of the year, increasing the diversity of public programs available in these places—for example, by increasing the number of Summer Food Service Program sites, child care providers participating in the Child and Adult Food Care Program, or food pantries—could expand the options available to the more rural families.

However, just because a town is identified as at *highest* or *high risk* for food insecurity does not necessarily mean all families there lack access to food. In fact, we found that many of these towns are located near or adjacent to towns or cities with multiple public and private food resources. The issue in this case becomes one of access to transportation. For any family with limited or no transportation and no public transportation other than school buses, living only five miles from a grocery store or food program site could put them at risk of food insecurity.

The data presented here are geographic only, so they cannot answer the questions of whether, how many, and how far families travel from neighboring or distant towns to buy or obtain food. Additional research is needed to find out more about the families in these vulnerable towns and how they are managing the challenges of obtaining food in places where options are limited. However, by helping to identify the places in New Hampshire that stand to benefit the most from targeted efforts to combat hunger and food insecurity, these maps provide valuable information to ensure that such efforts are deployed as efficiently as possible.

## Data Sources

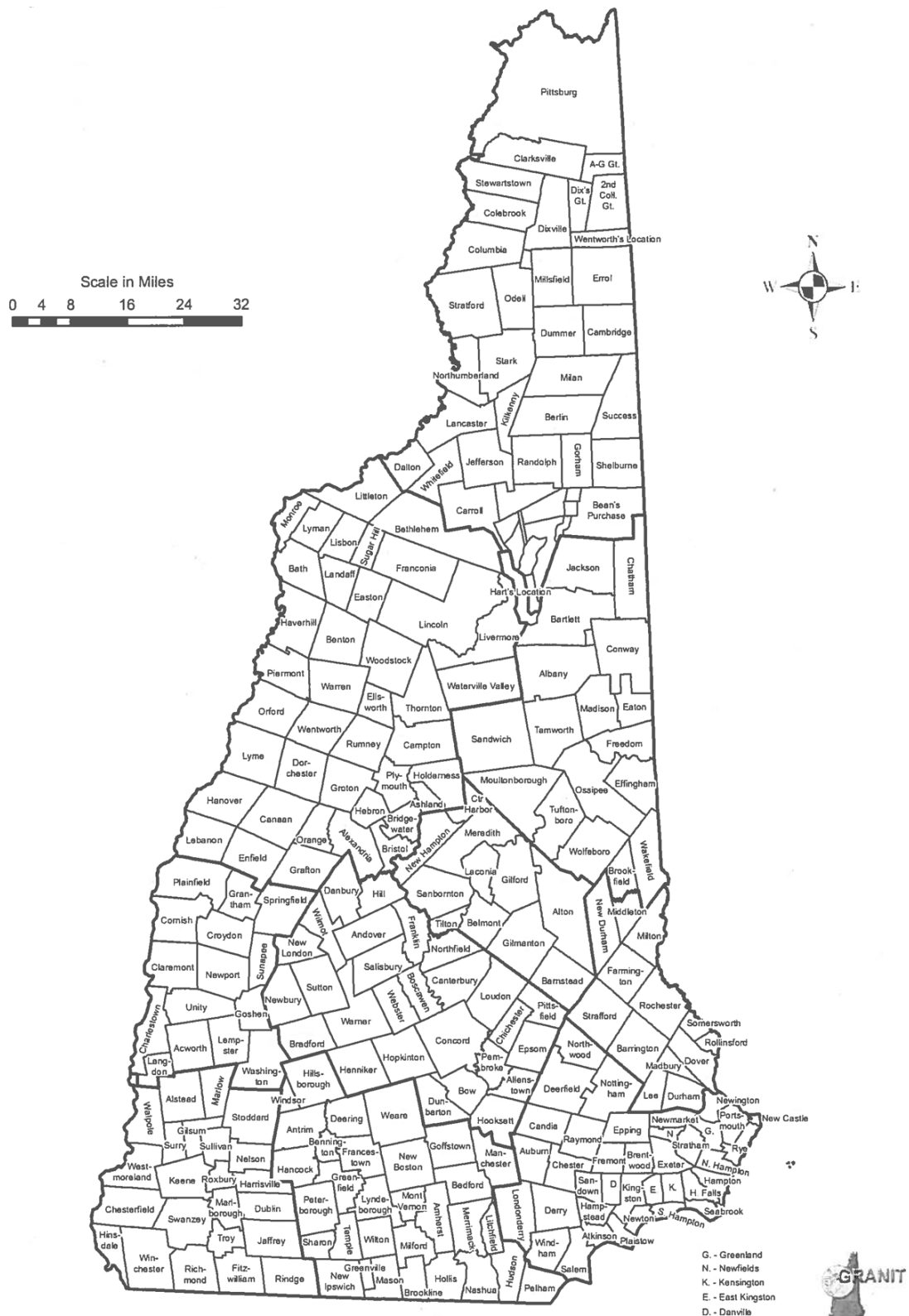
**Map 1:** New Hampshire Community Profiles, Economic & Labor Market Information Bureau, N.H. Employment Security, 2010, <http://www.nh.gov/nhes/elmi/communpro.htm>

**Maps 2 to 5:** Data for grocery stores, convenience stores, fresh food retail, and non-traditional food outlets were obtained from InfoUSA, July 11, 2011. Data for farm food were obtained from the N.H. Farmer's Market Association; N.H. Department of Agriculture, Markets, and Food; Seacoast Harvest; U.N.H. Cooperative Extension; and individual business websites.

**Maps 6 to 9:** Data for program sites for the National School Lunch Program, Summer Food Service Program, Afterschool Snack Program, and Fresh Fruit and Vegetable Program were provided by the N.H. Department of Education. Supplemental Nutrition Assistance Program (SNAP) data were obtained from the U.S.D.A. Food and Nutrition Service, <http://www.snapretailerlocator.com/>. Food pantry data were obtained from N.H. Food Bank and other food pantry websites. Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) data were provided by the N.H. Department of Health and Human Services. The N.H. Department of Education Child and Adult Care Food Program (CACFP) sponsor organizations provided data on child care programs participating in the program.

**Map 10:** The map was obtained from the N.H. Office of Energy and Planning at <http://www.nh.gov/oep/programs/GIS/documents/smbwtowns.pdf>.

MAP 10. NEW HAMPSHIRE MUNICIPALITIES



## ENDNOTES

1. At the time of this brief, the most recent year that these data were available was 2010. The other data in the study were available for 2011.
2. Mark Nord, Margaret Andrews, and Steven Carlson, "Household Food Security in the United States, 2008" (Washington, DC: Economic Research Service, USDA, 2009), <http://www.ers.usda.gov/publications/err83/>, retrieved November 19, 2009.
3. Prior research by the Carsey Institute found that the strongest predictors of food insecurity in New Hampshire households were income and distance to the nearest grocery store. Food insecurity was greater among those with lower income and among those who lived farther from a grocery store. For more information, see Nena Stracuzzi and Sally Ward, "What's for Dinner? Finding and Affording Healthy Foods in New Hampshire Communities," Issue Brief No. 21 (Durham, NH: University of New Hampshire, Carsey Institute).
4. Poverty data are from 2010 when the average federal poverty threshold for a family of four was \$22,314. See <http://www.census.gov/hhes/www/poverty/data/threshld/index.html>.
5. The decision to use a town's rate for families living at 100 percent of the federal poverty threshold rather than a broader range, such as up to 200 percent of the federal poverty threshold, was a practical one. The data available from the state, obtained from the U.S. Census Bureau, were available for all towns only at the 100 percent threshold. However, it is important to acknowledge that many parents with more income, particularly the working poor, are struggling to feed their families.
6. Definitions of federal food programs were obtained from the Food Research and Action Center website at [www.frac.org](http://www.frac.org).

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## ABOUT THE AUTHORS

Barbara Wauchope is research associate professor and director of evaluation at the Carsey Institute ([barb.wauchope@unh.edu](mailto:barb.wauchope@unh.edu)).

Sally Ward is interim dean of the University of New Hampshire Manchester campus and a professor of sociology at the University of New Hampshire ([sally.ward@unh.edu](mailto:sally.ward@unh.edu)).



## Children's Alliance of New Hampshire

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*The Children's Alliance of New Hampshire promotes policies and practices that enable all children to lead healthy and productive lives and to reach their full potential.*

Children's Alliance of New Hampshire  
Two Delta Drive  
Concord, NH 03301  
(603) 225-2264

[Info@childrennh.org](mailto:Info@childrennh.org)

[www.childrennh.org](http://www.childrennh.org)

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Huddleston Hall  
73 Main Street  
Durham, NH 03824  
(603) 862-2821

[www.carseyinstitute.unh.edu](http://www.carseyinstitute.unh.edu)