# Alabama Rural Land Values and Cash Rents, 2009

## **C**ONTENTS

	page
Introduction	3
Methods	3
Understanding Rural Land Markets	4
Rural Land Values by Districts	5
Changes in Land Values from February 2009 to August 2009	
Changes in Land Values from May 2000 to August 2009	
Rural Land Transfer and Price Projection	9
Farmland Cash Rents	
Rural Land Outlook	11
Summary and Conclusions	11
References	

 $Auburn\ University\ is\ an\ equal\ opportunity\ educational\ institution/employee.$ 

http:www.auburn.edu http:www.aaes.auburn.edu

This report can be found on the Web at www.aaes.auburn.edu/comm/pubs/forestry/land-values.pdf

## ALABAMA RURAL LAND VALUES AND CASH RENTS, 2009

Na Zhou, Rebecca Barlow, Walter Prevatt, and Yaoqi Zhang

## Introduction

armers, natural resource managers, and investors continually strive to understand rural land markets as part of their land management and investment decision making. Rural land values have undergone dramatic change in recent years, and the ability to understand and predict those changes in land value is necessary for the effective design of environmental, public finance, and urban growth policies.

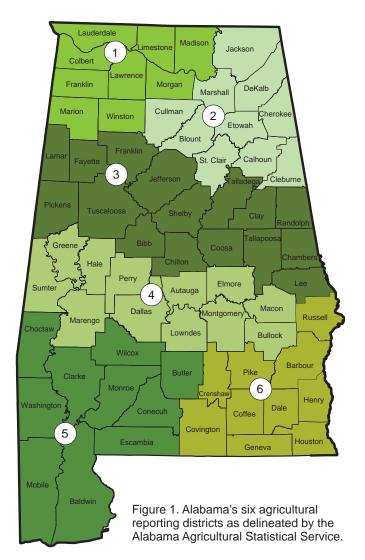
In an effort to understand these trends, the 2009 Alabama Farmland Values and Cash Rents report was developed to provide average estimates of rural land values in six agricultural reporting districts delineated by the Alabama Agricultural Statistical Service (Figure 1). Rural land values were estimated for counties located within each of the six geographical locations, which are similar in climate and soil type and generally have similar agricultural activities.

State average farm real estate values and cash rents have been evaluated by United States Department of Agriculture (USDA) for many years. The aim of this study is not to replace the USDA information, but to provide detailed information about average Alabama rural land values and cash rents and to identify the trend of land value based on different land uses and locations.

## **M**ETHODS

During August 2009, 890 questionnaires were mailed to individuals across Alabama who might have experience with rural land sales. Members of this group included real estate professionals, appraisers, natural resource land managers, and land investors. In addition, public agency employees such as those who work with Cooperative Extension System, Farm Service Agency, Revenue Commission, Federal Land Bank, and the Natural Resource Conservation Service were surveyed.

Of the 890 surveys, 70 were returned as undeliverable, and 88 were returned completed for a response rate of 10.7 percent. Of the 88 returned surveys, 74 were useable, and average estimates of rural land values and cash rents were based on these. Survey participants were asked to estimate market value per acre for each land-use category in February and August 2009. These estimates provided an indication of how rural land values changed over that six-month period. Changes in rural land



values from May 2000 to August 2009 were also estimated using results from the 2000 Alabama farmland values and cash rents report.

In 2009 the survey response rate was lower (10.7 percent) than the response rate (25 percent) to a similar survey conducted in 2000 for the 2000 report on Alabama farmland values and cash rents. The 2009 survey focused more on timberland prices than did the 2000 survey and so was sent specificially to individuals who bought and sold timberland in addition to people who were included in the 2000 survey.

Zhou is a research assistant, Barlow an assistant professor, and Zhang an associate professor in the School of Forestry and Wildlife Sciences. Prevatt is a professor in the Department of Agricultural Economics and Rural Sociaology in the College of Agriculture. All are at Auburn University.

## UNDERSTANDING RURAL LAND MARKETS

About 90 percent of total land surface area in Alabama is considered rural land. For the purposes of this report, Alabama rural land use was categorized as three major uses: farmland, timberland, and transition land. Farmland was classified as bare cropland, improved permanent pasture, and unimproved permanent pasture. Timberland included both bareland timberland and forested areas typically used in forest production and classified as pine, hardwood or mixed woodland sites. Transition land included undeveloped single home sites, undeveloped residential subdivisions, and undeveloped commercial and industrial areas.

## **Alabama Farmland**

The U.S. farming system is important to the balance of trade and the employment of nearly 23 million people nationwide. Farm real estate value is described by the USDA as the combination of land value and the additional value from any improvements to the land such as buildings, fences, wells, irrigation, and drainage. Farm real estate is the major asset on farm sector balance sheets, which account for more than 84 percent of total U.S. farm assets and more than 80 percent of total Alabama farm assets. Therefore, the general economic health of the agricultural sector and the underlying the financial stability of many farm businesses, whose portfolio derives a large proportion of their value from real estate, are closely linked with farmland values. Farm real estate is often the largest single investment item and may be used to finance the purchase of additional farmland and equipment or to finance current operating expenses.

The 2009 survey results for value of farmland are reported in Table 1. Average value for bare cropland in Alabama was reported at \$2,326 per acre. Improved and unimproved permanent pasture averaged \$2,307 and \$2,033 per acre, respectively.

## Alabama Timberland

Timberland in Alabama also has significant economic importance as well as environmental and aesthetic benefits. U.S. forestland area in 2002 totaled 651 million acres (28.8 percent of the total land area). In contrast, approximately 70 percent

of the total land area in Alabama was covered by forestland in 2008. During that period, more than 95 percent of the forestland in Alabama was privately owned, and approximately 65 percent of that was owned by small-scale nonindustrial private forests (NIPF) landowners. Due to landowners' multiple objectives, forests may be managed for reasons beyond timber production, such as recreational opportunities, wildlife habitat, biodiversity, water quality protection, and carbon sequestration.

A vital component of the state's economy, the forest industry in Alabama was the second largest in the U.S. in 2007. Alabama's forest industry included more than 900 primary and secondary manufacturing sectors in 2007, generating 18.3 percent of the state's total manufacturing output and employing nearly 54,000 people, or 3 percent of Alabama's 1.8 million jobs. Alabama forests produced an estimated \$15.6 billion in 2005 and ranked second statewide in all agricultural commodities in 2007.

The 2009 survey results for value of timberland are reported in Table 2. Timberland values were described by the type of timber grown and whether the site included land and trees or land only. Timberland values that included land and trees or land only (clear-cut) varied widely due to the size of the tract, the quality of the parcel, the value of the trees, and non-timber value considerations.

Average plantation pine (land-only) value for Alabama was \$1,421 per acre, while average value of plantation pineland and trees was \$2,119 per acre. Alabama's average timberland values for hardwood and mixed woodland (land and trees) were \$2,129 and \$2,203 per acre, respectively, or about \$822 and \$789 per acre greater than cutover hardwood and mixed woodland (land only, clear-cut).

## **Alabama Transition Land**

Transition land was defined as rural land that is likely to be changed to nonagricultural uses like residential, commercial, and industrial land. Due to population growth and economic development pressures, rural land used for residential purposes increased nationwide by 29 percent (21 million acres) from 1997 to 2002, and by 30 percent (17 million acres) from 1980 to 1997. This shift reflects landowners' desire to maximize economic benefits and use rural land to produce the highest expected return.

Table 1. Average Alabama Farmland Values by Location and Land Use as Reported in the 2009 Alabama Rural Land Value Survey (August 2009)

	———USDA Agricultural Reporting Districts———						
Farmland Use	One	Two	Three	Four	Five	Six	Alabama
			d	ollars per ac	re		
Bare Cropland	\$2756	\$3600	\$1640	\$1843	\$1650	\$2466	\$2326
	(1124)1	(1084)	(483)	(489)	(293)	(602)	
Improved Permanent Pasture	\$2567	\$3740	\$1992	\$1677	\$1494	\$2371	\$2307
·	(1133)	(1019)	(566)	(326)	(363)	(685)	
Unimproved Permanent Pasture	\$2088	\$3590	\$1450	\$1461	\$1350	\$2258	\$2033
·	(803)	(1139)	(346)	(357)	(536)	(626)	

<sup>&</sup>lt;sup>1</sup> Standard deviation is denoted in parenthesis below each estimate.

Alabama's average values for transition land in residential subdivisions and single home sites were \$9,296 and \$7,506 per acre (Table 3); these were approximately 90 and 73 percent, respectively, of the value of transition land in commercial and industrial use. Transition land used for commercial and industrial use in Alabama had an average value of \$10,322 per acre.

Land use and location have significant impacts on the average per-acre values of rural land. In August 2009, the highest average rural land value reported was in District Six for transition land moving to undeveloped commercial and industrial use and to undeveloped residential subdivision uses at \$17,000 per acre (Tables 1, 2, and 3). A wide range of transition land values were observed in District Five and District Six, likely due to the various characteristics of the parcels, like the distance to urban areas, size of the tract, site improvements, and accessibility.

A "relative value measurement" is commonly used to express the value of a given rural land use as a percentage of bare cropland value. For example, the value of improved permanent pasture was 99 percent of bare cropland value (\$2,307/\$2,326): unimproved permanent pasture, 87 percent; plantation pine (land only, clear-cut), 61 percent; hardwood (land only, clear-cut), 56 percent; and mixed woodland (land only, clear-cut), 61 percent.

## RURAL LAND VALUES BY DISTRICTS

## **Alabama Farmland**

The average value of bare cropland was highest in District Two at \$3,600 per acre (Table 1). This is consistent with results from the previous report in 2000 and is possibly due to the importance of urban influences in this region. Counties in this region, such as St. Clair, Calhoun, Etowah, and Marshall, have average higher population and income per capita when compared to other regions of Alabama. Lowest average bare cropland values were reported for District Three and District Five at \$1,640 and \$1,650 per acre, respectively (Table 1).

Average improved permanent pasture values were highest at \$3,740 per acre in District Two and lowest at \$1,494 per acre in District Five. The average unimproved permanent pasture values ranged from \$1,350 per acre in District Five to \$3,590 per acre in District Two. Unimproved permanent pasture values for District Three and District Four were similar (\$1,450 and \$1,461 per acre, respectively). The average improved permanent pasture and unimproved permanent pasture values were both highest in District Two and lowest in District Five. Urban influences in District Two may indeed be a factor.

Table 2. Average Alabama Timberland Values by Location and Land Use as Reported in the 2009 Alabama Rural Land Value Survey (August 2009)

		USD/	A Agricultural	Reporting D	istricts		State of			
Timberland Use	One	Two	Three	Four	Five	Six	Alabama			
		dollars per acre								
Plantation Pine (land only)	\$971	\$2420	\$1141	\$1395	\$1065	\$1531	\$1421			
	(329)1	(983)	(454)	(558)	(381)	(625)				
Hardwood (land only)	\$1050	\$2300	\$1135	\$1213	\$921	\$1221	\$1307			
	(274)	(985)	(561)	(426)	(458)	(670)				
Mixed Woodland (land only)	\$1042	\$2580	\$1190	\$1325	\$1000	\$1344	\$1414			
	(282)	(1034)	(546)	(649)	(401)	(542)				
Plantation Pine (land and trees)	\$1440	\$3625	\$1431	\$2143	\$1400	\$2675	\$2119			
,	(238)	(850)	(611)	(601)	(200)	(538)				
Hardwood (land and trees)	\$1383	\$3640	\$1607	\$2129	\$1213	\$2800	\$2129			
	(317)	(879)	(1103)	(660)	(103)	(979)				
Mixed Woodland (land and trees)	\$1458	\$3300	\$1976	\$2260	\$1625	\$2600	\$2203			
(	(397)	(758)	(1816)	(800)	(386)	(839)	,			

<sup>&</sup>lt;sup>1</sup> Standard deviation is denoted in parenthesis below each estimate.

Table 3. Average Alabama Transition Land Values by Location and Land Use as Reported in the 2009 Alabama Rural Land Value Survey (August 2009)

			State of							
Transition Land Use	One	Two	Three	Four	Five	Six	Alabama			
	dollars per acre-									
Undeveloped Single Home Site	\$7417	\$8300	\$6580	\$3911	\$6400	\$12429	\$7506			
•	(3200)1	(4353)	(3171)	(1326)	(4393)	(10783)				
Undeveloped Residential Subdivision	\$7900	\$14167	\$5794	\$4417	\$6500	\$17000	\$9296			
·	(5878)	(6292)	(3166)	(1357)	(6689)	(19925)				
Undeveloped Commercial and Industrial Use	\$7000	\$12125	\$7486	\$8000	N/A	\$17000	\$10322			
·	(5354)	(5137)	(3521)	(2309)		(19925)				

<sup>&</sup>lt;sup>1</sup> Standard deviation is denoted in parenthesis below each estimate.

Counties in District Five such as Conecuh, Choctaw, Wilcox, and Washington have lower population and income per capita than in other districts.

## Alabama Timberland

Average plantation pine (land-only) values ranged from \$971 per acre in District One to \$2,420 per acre in District Two (Table 2). Average hardwood (land-only, clear-cut) values were highest in District Two at \$2,300 per acre and lowest in District Five at \$921 per acre. Average mixed woodland (land-only, clear-cut) values ranged from \$1,000 per acre in District Five to \$2,580 per acre in District Two. Generally, District Five average timberland values (land only, clear-cut) were lower than other districts, while District Two average timberland values (land only, clear-cut) were consistently higher than other districts.

Average overall timberland (land and trees) values for the state ranged from a low of \$1,213 per acre in District Five for hardwood to a high of \$3,640 per acre in District Two for hardwood (Table 2). Average plantation pine (land and trees) values per acre were similar for District One (\$1,440), District Three (\$1,431), and District Five (\$1,400). Plantation pine (land and trees) values were similar for District Four at \$2,143 per acre and District Six at \$2,675 per acre. The highest value of plantation pine (land and trees) was \$3,625 per acre in District Two.

Average hardwood (land and trees) values were similar for District One (\$1,383), District Three (\$1,607), and District Five (\$1,213). The highest value of hardwood (land and trees) was \$3,640 per acre in District Two.

Average mixed woodland (land and trees) values were similar for District One (\$1,458) and District Five (\$1,625). Mixed woodland (land and trees) values were similar for District Three at \$1,976 per acre and District Four at \$2,260 per acre. The highest value of mixed woodland (land and trees) was \$3,300 per acre in District Two.

Generally, average timberland values for District Two were higher than other districts probably due to recreational and urban influence. Stumpage revenue from sale of forest products in District Five, which is a major forested area, accounted for approximately 33 percent of the state's total stumpage revenue in 2008. However, average timberland prices in District Five were not higher than other districts, possibly as a result of depressed timber markets and rural nature of this region. Studies have shown that timberland owners in the mountain region of Alabama where District Two is located were more likely to enjoy non-timber amenities such as recreational opportunities, while landowners in the Coastal Plains (such as District Five) were found to be focused more on farm- and timber-related objectives.

## **Alabama Transition Land**

Average transition land values for undeveloped single home sites were highest for District Six (\$12,429) and lowest for District Four (\$3,911) (Table 3). The average transition land values for undeveloped residential subdivision uses were highest in District Six (\$17,000) and lowest in District Four (\$4,417). Similarly, undeveloped commercial and industrial

uses were highest in District Six at \$17,000 per acre and were lowest in District One at \$7,000 per acre. In general, average transition land values were highest in District Six, which is possibly because of increasing urban growth and commercial and industrial development in this region.

## **Regional Comparison Summary**

In summary, there were considerable differences in rural land values under different land uses and locations. Average rural land values were generally higher in District Two and District Six (Tables 1, 2, and 3). The average bare cropland value per acre in District Two (\$3,600) and District Six (\$2,466) were higher than Alabama's average bare cropland value (\$2,326) by 55 percent and 6 percent, respectively. The average improved permanent pasture value per acre in District Two (\$3,740) and District Six (\$2,371) were higher than Alabama's improved permanent value (\$2,307) by 62 percent and 3 percent, respectively. The average unimproved permanent pasture value per acre in District Two (\$3,590) and District Six (\$2,258) were higher than Alabama's average unimproved permanent pasture value (\$2,033) by 77 percent and 11 percent, respectively (Table 1).

As far as the average values per acre of timberland were concerned, District Two had the highest values for all timberland categories when compared to other districts. Average land-only values per acre of plantation pine, hardwood, and mixed woodland in District Two were at least 70 percent higher than Alabama's average value for each category. Average value of land and trees per acre for plantation pine, hardwood, and mixed woodland in District Two was approximately 50 to 70 percent higher than Alabama's average value (Table 2).

Transition lands used for undeveloped single home sites in District Two and District Six were \$794 (11 percent) and \$4,923 (66 percent), respectively, higher than the average state value of \$7,506. Average value per acre of undeveloped residential subdivisions in District Two and District Six was \$4,871 (52 percent) and \$7,704 (83 percent) per acre, respectively, higher than Alabama's average value of \$9,296. Average value per acre of undeveloped commercial and industrial lands in District Two and in District Six was \$1,803 (17 percent) and \$6,678 (65 percent) per acre, respectively, higher than average state value of \$10,322 per acre (Table 3).

## Changes in Land Values from February 2009 to August 2009

Nationwide declines in farmland values were reported according to the 2009 report provided by the USDA. On January 1, 2009, U.S. cropland values averaged \$2,650 per acre, down from 2008 at \$2,760 per acre, a decrease of approximately 4.0 percent. Pasture values in the U.S. averaged \$1,070 per acre, falling 1.8 percent from 2008. In addition, U.S. farm real estate values have declined 3.2 percent. This was the first drop in U.S. farmland price since 1987. This sudden change is primarily due to the overall economic recession and the depressed financial condition of rural land markets. Also, the decline in

value likely stems from lower livestock and crop product/commodity prices and high input costs.

Average cropland and pasture values in the Southeast also suffered considerable declines at 9.1 percent and 13.7 percent, respectively, from January 1, 2008, to January 1, 2009, as reported by the USDA. Alabama cropland and pasture values also decreased during that period, down 5.7 percent and 5.6 percent, respectively.

## Alabama Farmland

A downward trend continued in Alabama's farmland with average cropland and pasture values declining 4.5 percent and 5.8 percent from February 2009 to August 2009 (Table 4).

The percent changes for farmland categories by district were negative, except for no change reported for improved permanent pasture in District One. The average percent change in farmland for Alabama ranged between -6.9 percent to -4.5 percent (Table 4). The percentage decrease in the farmland category by district ranged from -22.9 percent to 0.0 percent.

## Alabama Timberland

The percent changes in value for timberland were negative for most uses by region (Table 5). However, there was no change for hardwood (land only), mixed woodland (land only), plantation pine (land and trees), and mixed woodland (land and trees) in District One, or for mixed woodland (land only) in District

Table 4. Average Alabama Farmland Values by Location and Land Use as Reported in the 2009 Alabama Rural Land Value Survey (August and February 2009)

		USD/	A Agricultural	Reporting Di	stricts		State of
Farmland Use	One	Two	Three	Four	Five	Six	Alabama
				lollars per ac	re		
Bare Cropland							
Aug 2009	\$2756	\$3600	\$1640	\$1843	\$1650	\$2466	\$2326
Feb 2009	\$2861	\$3650	\$1775	\$1979	\$1792	\$2550	\$2435
% Change	-3.7%	-1.4%	-7.6%	-6.9%	-7.9%	-3.3%	-4.5%
mproved Permanent Pastur	re						
Aug 2009	\$2567	\$3740	\$1992	\$1677	\$1494	\$2371	\$2307
Feb 2009	\$2567	\$3750	\$2140	\$1747	\$1886	\$2436	\$2421
% Change	0.0%	-0.3%	-6.9%	-4.0%	-20.8%	-2.7%	-4.7%
Jnimproved Permanent Pas	sture						
Aug 2009	\$2088	\$3590	\$1450	\$1461	\$1350	\$2258	\$2033
Feb 2009	\$2113	\$3700	\$1625	\$1511	\$1750	\$2400	\$2183
% Change	-1.2%	-3.0%	-10.8%	-3.3%	-22.9%	-5.9%	-6.9%

Table 5. Average Alabama Timberland Values by Location and Land Use as Reported in the 2009 Alabama Rural Land Value Survey (August and February 2009)

		——USDA Agricultural Reporting Districts—— Sta								
Timberland Use	One	Two	Three	Four	Five	Six	Alabama			
			(	dollars per a	cre					
Plantation Pine (land only)										
Aug 2009	\$971	\$2420	\$1141	\$1395	\$1065	\$1531	\$1421			
Feb 2009	\$1007	\$2540	\$1370	\$1463	\$1133	\$1600	\$1519			
% Change	-3.6%	-4.7%	-16.7%	-4.6%	-6.0%	-4.3%	-6.4%			
Hardwood (land only)										
Aug 2009	\$1050	\$2300	\$1135	\$1213	\$921	\$1221	\$1307			
Feb 2009	\$1050	\$2400	\$1239	\$1279	\$933	\$1329	\$1372			
% Change	0.0%	-4.2%	-8.4%	-5.2%	-1.3%	-8.1%	-4.7%			
Mixed Woodland (land only)										
Aug 2009	\$1042	\$2580	\$1190	\$1325	\$1000	\$1344	\$1414			
Feb 2009	\$1042	\$2690	\$1545	\$1427	\$1000	\$1463	\$1528			
% Change	0.0%	-4.1%	-23.0%	-7.1%	0.0%	-8.1%	-7.5%			
Plantation Pine (land and tree	es)									
Aug 2009	\$1440	\$3425	\$1431	\$2143	\$1400	\$2675	\$2119			
Feb 2009	\$1440	\$3550	\$1607	\$2277	\$1583	\$2750	\$2201			
% Change	0.0%	-3.5%	-11.0%	-5.9%	-11.6%	-2.7%	-3.7%			
Hardwood (land and trees)										
Aug 2009	\$1383	\$3640	\$1607	\$2129	\$1213	\$2800	\$2129			
Feb 2009	\$1450	\$3560	\$1842	\$2233	\$1475	\$3083	\$2274			
% Change	-4.6%	2.2%	-12.8%	-4.7%	-17.8%	-9.2%	-6.4%			
Mixed Woodland (land and tr	ees)									
Aug 2009	\$1458	\$3300	\$1976	\$2260	\$1625	\$2600	\$2203			
Feb 2009	\$1458	\$3260	\$2579	\$2383	\$2038	\$2730	\$2408			
% Change	0.0%	1.2%	-23.4%	-5.2%	-20.3%	-4.8%	-8.5%			

Five. Positive changes for hardwood (land and trees) and mixed woodland (land and trees) were found in District Two.

The average percent change in timberland for Alabama ranged from -8.5 percent to -3.7 percent (Table 5). Change in timberland land-only categories ranged from -23.0 percent to 0.0 percent, while timberland categories with land and trees ranged from -23.4 percent to +2.2 percent. The average percent change for timberland categories in District One were small and more stable when compared to other districts. Average timberland prices in District Two were generally higher than other districts. The average percent change for timberland categories in District Two indicated that there were some increases in values for hardwood (land and trees) and mixed woodland (land and trees). This may be the result of the increasing importance of non-timber values to many landowners. Indeed, those individuals from affluent urban areas may influence demand for and value of non-timber forest activities. Hardwood (land and trees) and mixed woodland (land and trees) areas could be more desirable to these landowners, for their amenity values such as forest aesthetics and wildlife habitat.

### **Alabama Transition Land**

Most value changes for transition land use in Alabama were negative except for undeveloped residential subdivision lands in District One and District Five and undeveloped commercial and industrial land in District One. The average percent change in transition land for Alabama ranged between -9.6 percent to -3.8 percent (Table 6). The percent change in the transition land category by district ranged from -26.9 percent to 8.2 percent.

## CHANGES IN LAND VALUES FROM MAY 2000 TO AUGUST 2009

All prices of rural land in 2009 were adjusted by consumer price index (CPI) and fixed to year 2000 as a base year. August 2009 land values for all categories were compared with May 2000 land values. Alabama's average values increased for all land uses, except for a decrease in value per acre for undeveloped commercial and industrial uses, as shown in Table 7.

Table 6. Average Alabama Transition Land Values by Location and Land Use as Reported in the 2009 Alabama Rural Land Value Survey (August and February 2009)

			State of				
Transition Land Use	One	Two	Three	Four	Five	Six	Alabama
			do	llars per ac	re		
Undeveloped Single Home Site							
Aug 2009	\$7417	\$8300	\$6580	\$3911	\$6400	\$12429	\$7506
Feb 2009	\$7583	\$8600	\$7548	\$4334	\$8750	\$13000	\$8303
% Change	-2.2%	-3.5%	-12.8%	-9.8%	-26.9%	-4.4%	-9.6%
Undeveloped Residential Subdivision							
Aug 2009	\$7900	\$14167	\$5794	\$4417	\$6500	\$17000	\$9296
Feb 2009	\$7300	\$15000	\$6479	\$5500	\$6375	\$17333	\$9665
% Change	8.2%	-5.6%	-10.6%	-19.7%	2.0%	-1.9%	-3.8%
Undeveloped Commercial and Industrial Use							
Aug 2009	\$7000	\$12125	\$7486	\$8000	N/A	\$17000	\$10322
Feb 2009	\$7000	\$13375	\$9180	\$9625	N/A	\$17333	\$11303
% Change	0.0%	-9.3%	-18.5%	-16.9%	N/A	-1.9%	-8.7%

Table 7. A Comparision of 2009 Alabama R	Rural Land V	alues (Nomina	al and Real)		
		•	Real	Change in	Change in
			Aug. 2009 <sup>1</sup>	nominal value,	real value,
Land Use	May 2000	Aug. 2009	(Index back to 2000)	2000-2009	2000-2009
		-dollars per acr	·e	%	
Farmland					
Bare Cropland	1433	2326	1867	+62	+30
Improved Permanent Pasture	1413	2307	1852	+63	+31
Unimproved Permanent Pasture	1134	2033	1632	+79	+44
Transition Land					
Undeveloped Single Home Site	4442	7506	6025	+69	+36
Undeveloped Residential Subdivision	6122	9296	7462	+52	+22
Undeveloped Commercial and Industrial Use	10459	10322	8285	-1	-21
Timberland					
Plantation Pine (land only)	763	1421	1141	+86	+49
Hardwood (land only)	701	1307	1049	+86	+50
Mixed Woodland (land only)	740	1414	1135	+91	+53
Plantation Pine(land and trees)	1456	2119	1701	+46	+17
Hardwood (land and trees)	1381	2129	1709	+54	+24
Mixed Woodland (land and trees)	1425	2203	1768	+55	+24
1 = 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0			D : 1 / (OD!) 0000		

<sup>&</sup>lt;sup>1</sup> Estimates the 2000 value of rural land based on the price in 2009 using Consumer Price Index (CPI):2000 index=172.2; 2009 index=214.537; Estimates the 2000 value of land from the 2009 price: 2000 index/2009 index \*2009 value=estimated 2000 value.

### **Alabama Farmland**

The highest average percent change in Alabama farmland from May 2000 to August 2009 was +79 percent (in nominal value) or +44 percent (in real value) for unimproved permanent pasture. The percent change ranged from +62 percent to +79 percent (in nominal value), or from +30 percent to +44 percent (in real value) (Table 7). In August 2009, Alabama bare cropland values averaged \$2,326 per acre (in nominal value) or \$1,867 per acre (in real value), up from May 2000 at \$1,433 per acre, an increase of approximately 62 percent (in nominal value) or 30 percent (in real value). Alabama average improved permanent and unimproved permanent pasture values during that period averaged \$2,307 and \$2,033 per acre (in nominal value), or \$1,852 and \$1,632 per acre (in real value), up from May 2000 at \$1,413 and \$1,134 per acre, an increase of approximately 63 percent and 79 percent (in nominal value), or 31 percent and 44 percent (in real value), respectively.

## Alabama Timberland

The average percent change in timberland categories for Alabama ranged from +46 percent to +91 percent (in nominal value), or from +17 percent to +53 percent (in real value). The highest percent change in this category was for mixed woodland (land only) at +91 percent (in nominal value) and +53 percent (in real value), increasing to \$1,414 (in nominal value) and \$1,135 (in real value) in 2009 up from a prior value of \$740 in 2000 (Table 7). Timberland categories with land only ranged from +86 percent to +91 percent (in nominal value), and from +49 percent to +53 percent (in real value). Timberland categories with land and trees ranged from +46 percent to +55 percent (in nominal value) or from +17 percent to +24 percent (in real value).

## **Alabama Transition Land**

The average percent changes for transition land were varied and ranged from -1 percent to +69 percent (in nominal value) and from -21 percent to +36 percent (in real value) (Table 7). Values increased by +69 percent and +52 percent in nominal value (+36 percent and +22 percent in real value) for undeveloped single home sites and undeveloped residential

subdivision, respectively, from 2000 to 2009, while values of undeveloped commercial and industrial land dropped a 1 percent in nominal value (-21 percent in real value). This was, perhaps, a reflection of the current economic recession, resulting in the greatest decrease in the rural land industry to date.

## RURAL LAND TRANSFER AND PRICE PROJECTION

Respondents were asked to report their observations regarding the number of farmland transfers during the past twelve months when compared to a year earlier as well as their projection of where farmland prices may be a year from now based on current levels. The results are presented in Table 8.

For Alabama, no respondents reported an increase in farmland transfers during the past twelve months. Approximately 32 percent of the respondents reported no change in the number of farmland transfers while about 68 percent reported fewer. The average percent change estimated for statewide farmland transfers during the past twelve months was 22 percent lower than last year ranging from -32 percent to -9 percent. The lowest (-32 percent) change in farmland transfer was reported in District Two.

About 45 percent of the survey respondents expected no change in farmland prices in 2009. Forty-two percent of the respondents expected lower farmland prices for 2009 while only 13 percent expected higher farmland prices. The average percent change estimated for statewide farmland prices during the past twelve months was 5 percent lower than last year and ranged from -11 percent to +0.6 percent.

Respondents were also asked to give their opinions about the number of timberland transfers during the past twelve months compared with a year earlier as well as their projection of where timberland prices may be a year from now based on current levels (Table 9).

Twenty-six percent of the respondents reported no change in timberland transfers while 68 percent reported lower and 6 percent reported higher timberland transfers during the past twelve months. The average percent change estimated for statewide timberland transfers during the past twelve months was 21 percent lower than last years and ranged from -31 percent

Table 8. Respondents' Opinions Regarding Alabama Recent Volume of Farmland Transfers and Projected Direction of Farmland Values a Year from August 2009 as Reported in the 2009 Alabama Rural Land Value Survey

		————USDA Agricultural Reporting Districts———— State of									
Land Use	One	Two	Three	Four	Five	Six	Alabama				
		percentage of respondents <sup>1</sup>									
Farmland Transfers											
Higher	0	0	0	0	0	0	0				
No Change	67	17	45	25	13	22	32				
Lower	33	83	55	75	88	78	68				
Projected Farmland Prices											
Higher	11	17	0	16	0	33	13				
No Change	89	67	64	26	25	22	45				
Lower	0	17	36	58	75	44	42				
	percent change projected										
Farmland Transfers	-9	-32	-13	-30	-19	-23	-22				
Projected Farmland Prices	0.6	0	-6	-8	-11	-1	-5				

<sup>&</sup>lt;sup>1</sup> Percentages may not sum to 100 due to rounding.

to -10 percent. The lowest (-31 percent) estimated change in timberland transfers was reported in District Two and District Four (Table 9).

Approximately 45 percent of the survey respondents expected no change in timberland prices in 2009; this response was similar to the response for farmland price estimates. Forty-seven percent of the respondents expected lower statewide timberland prices for 2009 while only 8 percent were more optimistic and expect higher prices for timberland. The average percent change estimated for timberland prices during the past twelve months was 6 percent lower than last year and ranged from -11 percent to +0.8 percent (Table 9).

## FARMLAND CASH RENTS

The average cash rent per acre estimates by location and land use are illustrated in Table 10. Average cash rent per acre in Alabama is characterized by a number of factors. Location, land use, irrigation use, improvement, type of crop, and quota contributed to a wide variety of possible cash rents per acre.

Alabama's average rental rates for bare cropland with irrigation and without irrigation for 2009 were \$79 and \$42 per acre, respectively (Table 10). Consistent with the findings of 2000 land value and cash rents report, respondents in Districts One, Five, and Six also reported higher cropland cash rents

per acre than other districts. The results may indicate that bare cropland cash rent values in District One were greatly affected by corn and cotton production in. Corn production in this district accounts for 55 percent of Alabama's total production, and cotton accounts for 36 percent. Cotton and peanut production may have a large impact on the bare cropland cash rent values in District Five and District Six. Cotton production in District Five and Six represents about 21 percent and 29 percent of state's total production, and peanut production in these two districts contributed 30 percent and 64 percent to the total production, respectively. By district, the cash rent per acre for bare cropland ranged from \$38 to \$125 per acre with irrigation and \$29 to \$55 per acre without irrigation.

Alabama average rental rate for improved permanent pasture was \$23 per acre (Table 10). Alabama's average rental rates for unimproved permanent pasture and woodland pasture were \$17 and \$9 per acre, respectively. Their values were approximately 74 percent and 39 percent of improved permanent pasture. Improved and unimproved permanent pasture cash rental rates were higher in District One, District Two, and District Six since the average improved and unimproved permanent pasture values were also higher in these districts. Pasture cash rent was affected more by land value than by commodity prices. The differences in improved permanent pasture cash rental rates probably reflect different quality of pastures, vari-

Table 9. Respondents' Opinions Regarding Alabama Recent Volume of Timberland Transfers and Projected Direction of Farmland Values a Year from August 2009 as Reported in the 2009 Alabama Rural Land Value Survey

		USD/	A Agricultural	Reporting D	istricts		State of				
Land Use	One	Two	Three	Four	Five	Six	Alabama				
		percentage of respondents <sup>1</sup>									
Timberland Transfers											
Higher	0	0	8	10	0	11	6				
No Change	70	17	42	10	11	11	26				
Lower	30	83	50	80	89	78	68				
Projected Timberland Prices											
Higher	0	0	0	16	0	22	8				
No Change	100	83	55	16	22	33	45				
Lower	0	17	45	68	78	44	47				
			percen	t change proj	ected						
Timberland Transfers	-10	-31	-11	-31	-18	-22	-21				
Projected Timberland Prices	0	0.8	-7	-9	-11	-2	-6				

<sup>&</sup>lt;sup>1</sup> Percentages may not sum to 100 due to rounding.

Table 10. Average 2009 Alabama Cash Rent Per Acre Estimates by Location and Land Use as Reported in the 2009 Alabama Rural Land Value Survey

		USDA A		State of					
Land Use	One	Two	Three	Four	Five	Six	Alabama		
	cash rent per acre								
Bare Cropland with Irrigation	\$125	N/A	\$38	\$70	\$72	\$90	\$75		
	(0) <sup>1</sup>		(28)	(0)	(33)	(37)			
Bare Cropland without Irrigation	<b>\$</b> 54	\$37	<b>\$</b> 29	\$ <del>3</del> 7	<b>\$</b> 55	<b>\$4</b> 0	\$41		
	(11)	(3)	(11)	(7)	(28)	(6)			
Improved Permanent Pasture	<b>\$</b> 29	\$ <u>2</u> 5	<b>\$1</b> 3	<b>\$</b> 19	<b>\$</b> 23	\$26	\$23		
•	(3)	(6)	(6)	(8)	(3)	(5)			
Unimproved Permanent Pasture	Ì9	\$ <u>2</u> 1	\$ÌŚ	<b>\$</b> 16	\$ÌŚ	\$18	\$17		
	(4)	(5)	(0)	(3)	(0)	(5)			
Woodland Pasture	\$ <del>7</del> .5	\$13	<b>`</b> \$9	<b>\$</b> 9	<b>\$</b> 5	\$ÌŹ	\$9		
	(3)	(4)	(2)	(2)	(0)	(6)	•		

<sup>&</sup>lt;sup>1</sup> Standard deviation is denoted in parenthesis below each estimate.

ous types of pastures, and improvements such as fencing, road frontage, water, surrounding land use, open space, and distance to major markets.

The average cash rents expressed as a percent of August 2009 farmland values by location and land use are presented in Table 11. Average cash rents as a percent of land value fell in a narrow range for each land-use category. District Five showed the highest average cash rent as a percent of bare cropland value at 3.3 percent. The highest average cash rent as a percent of improved permanent pasture value was 1.5 percent in District Five; the highest average cash rent for unimproved permanent pasture was 1.1 percent in District Four. Generally, lower average cash rents as a percent of land value were observed in District Two.

Alabama average cash rent for bare cropland without irrigation averaged \$42 per acre, which was 1.8 percent of the estimated land value. Statewide average cash rent for improved permanent pasture and unimproved permanent pasture averaged \$23 per acre and \$17 per acre, about 1.0 percent and 0.8 percent of the estimated land value, respectively.

## RURAL LAND OUTLOOK

Variation in U.S. farm real estate prices attracted wide-spread interest over the last 40 years. This time frame is divided to several important parts: a growth period (1970 to 1981), the farm crisis period (1982 to 1987), and the current period (1988 to 2007).

From 1940 to 2006 (except for the mid-1980s), U.S. farm real estate values have increased consistently and substantially, appreciating at 6.4 percent annual real returns, adjusted by the consumer price index (1982-84=100). Interestingly, U.S. farm real estate values had an average annual increases of 4.4 percent during 1987 to 1997, 8.3 percent during 1997 to 2006, and 15.2 percent between 2005 to 2006.

The trend also exists in Alabama farm real estate values, which have risen greatly at 6.4 percent annual real return during the 1970 to 2007 period, ranging from -6.2 percent in 1983 to 26.8 percent in 2005. Purchasing farm real estate has been an attractive investment against inflation in the long-term.

Bare timberland prices have increased steadily while timber prices in the U.S. have shown a significant decline. In addition, there were dramatic shifts in the ownership of private lands as industrial landowners sold their landholding and non-industrial landowners eagerly purchased land primarily for recreational and environmental reasons.

Many studies have found that non-industrial private landowners own land for a variety of reasons and that non-timber values are often more important than timber production. These non-timber values from Alabama forests are not easily quantified separately, but contribute greatly to the total land values, and are increasingly important to the Alabama economy.

Acreage estimates of transition land have substantially risen during the past century. In response to an expanding population and industrial growth, the U.S. has changed from a predominantly rural to an urban nation. Rural landowners have become more likely to invest their farmland or timberland for development. Overall, values and uses of all kinds of rural lands have undergone dramatic change, which have affected economic development and global environmental changes. Obtaining sustainable economic and ecological ecosystems through better management of land resources is increasingly important to society.

Current forecasts suggest that the slight decreases in rural land prices will likely continue in 2010 due to the economic recession. However, it is expected that this trend will eventually be reversed. According to 42 forecasters surveyed by the Federal Reserve Bank of Philadelphia, the U.S. economy will likely grow at an annual rate of 2.7 percent over each of the next five quarters. Foreign and domestic financial markets are expected to continually recover in the future. A weak U.S. dollar will support a higher level of agricultural exports, and in turn, domestic commodity prices. Therefore, it is assumed that higher agricultural incomes due to desirable commodity prices will be associated with supporting higher rural land values. Non-agriculture values of rural land such as hunting, fishing, wildlife, water production, surrounding land use, open space, and other improvements are expected to continue to have a positive impact on Alabama rural land values as well. In addition, a variety of government policies such as 1031 tax exchange, property taxes, estate taxes, federal commodity support programs, and biofuels energy policy all contribute to support solid rural land values.

Like other investments, land and timber prices cycle in response to changing markets. As land values adjust to changes in the economic climate, investing in rural land should continue to be a good hedge against inflation over the long term, especially in times of economic volatility. And with prudent management, the many resources these lands provide will continue to benefit the citizens of Alabama.

## **SUMMARY AND CONCLUSIONS**

Based on a survey of individuals across Alabama who have experience with rural land sales, Alabama land values generally were down in 2009 when compared to prior years.

Table 11. Average 2009 Alabama Cash Rent Expressed as a Percent of August 2009 Farmland Values by Location and Land Use as Reported in the 2009 Alabama Rural Land Value Survey

	———USDA Agricultural Reporting Districts———— State							
Land Use	One	Two	Three	Four	Five	Six	Alabama	
				%				
Bare Cropland without Irrigation	1.96	1.03	1.77	2.01	3.33	1.62	1.81	
Improved Permanent Pasture	1.13	0.67	0.65	1.13	1.54	1.10	1.00	
Unimproved Permanent Pasture	0.91	0.58	1.03	1.10	1.01	0.80	0.8	

Results of the survey included in this report are (1) average estimates of rural land values (including farmland, timberland, and transition land) and cash rents in six agricultural reporting districts in Alabama, (2) differences in Alabama rural land values during the six months from February 2009 to August 2009, and (3) changes in real estate values between 2000 and 2009.

Survey respondents provided various reasons to explain this drop in U.S. rural land prices. Some professionals indicated "down economy" and "harder financial condition." Some said that "low commodity price," "high cost for input," and "high tax" were factors. Other experts reported "slow sales," and "depressed land market for development."

Information from the USDA report "The 2008/2009 World Economic Crisis: What It Means for U.S. Agriculture" also indicates that U.S. agriculture has been greatly affected by the 2008-2009 world economic crisis, which caused a sharp decrease in agricultural prices, farm income, and employment compared to 2007 and 2008. As a result, 2009 rural land values also declined.

Information in this report is not for the estimate of any particular parcel. The value of individual parcels may differ greatly from these estimates since each parcel has own characteristics, including land, location, and improvement characteristics. Different characteristics of the land could substantially affect the price. For example, attributes like proximity to bodies of water, surrounding land use, distance to major roads, and urban areas will influence the value of a given parcel.

## REFERENCES

- Adrian, J. and W. Prevatt. 2007. Alabama farm real estate: A comparison of returns and values since 1970. Alabama Cooperative Extension System AG economic series DAERS 07-11. 7 p.
- Alabama Forestry Commission (AFC). 2005. Alabama Forest Industry. Available online at www.ado.alabama.gov/content/media/publications/forestry/ForestFacts.pdf; last accessed Mar. 22, 2010.
- Alabama Forestry Commission (AFC). 2007. Alabama Primary Forest Industry Directory. Available online at www. forestry.alabama.gov/PDFs/Alabama\_Primary\_Forest\_Industry07.pdf; last accessed Mar. 22, 2010.
- Alabama Forestry Commission (AFC). 2008. Forest Resource Report 2008. Available online at www.forestry.alabama. gov/PDFs/2008%20Forest%20Resource%20Report.pdf; last accessed Mar. 22, 2010.
- American Farmland Trust (AFT) Farmland Information Center. 2003. Fact Sheet: Why Save Farmland? Available online at www.registryofnaturehabitats.org/pdf/whysavefarmland.pdf; last accessed Apr. 15, 2010.
- Armstrong, F.H. 1987. Is Timber the Highest and Best Use of Vermont Forest Properties? Northern Journal of Applied Forestry. 4(4):186-189.

- Aronsson, T. and A. Carlen. 2000. The determinants of forest land prices: An empirical analysis. Canadian Journal of Forest Research. 30(4):589-595.
- Barlow, R.J., S.C. Grado. 2002. Linking scenario planning with GIS to develop a decision support system for multiple-use in Mississippi. Forest and Wildlife Research Center Mississippi State University No. FO179. 5 p.
- Binkley, C.S, C.F. Raper, and C.L. Washburn. 1996. Institutional investment in U.S. timberland: History, rationale, and Implications for forest management. Journal of Forestry. 94(9):21-28.
- Bockstael, N. 1996. Modeling Economics and Ecology: the Importance of a Spatial Perspective. American Journal of Agricultural Economics. 78(5):1168-1180.
- Bureau of Labor Statistics (BLS). 2010. The Consumer Price Index. Available online at http://www.bls.gov/cpi/; last accessed Apr. 15, 2010.
- Butler, B.J. and E.C. Leatherberry. 2004. America's family forest owners. Journal of Forestry. 102(7):4-14.
- Clouser, R.L., R. Muraro, L. Racevskis, C. Moss, and A. Morris. 2008. 2008 Florida Land Value Survey: Farmland Prices Down. Available online at http://edis.ifas.ufl.edu/fe798; last accessed Mar. 22, 2010.
- Conroy, R. and M. Miles. 1989. Commercial forest land in Pension Portfolio: The biological beta. Financial Analysts Journal. 45(5):46-54.
- Duffy, M.D. and D. Smith. 2009. 2008 Farmland Value Survey. Available online at www.extension.iastate.edu/agdm/wholefarm/html/c2-70.html; last accessed Mar. 22, 2010.
- Federal Reserve Bank of Philadelphia. 2010. Economic Research, Survey of Professional Forecasters, First Quarter 2010. Available online at www.phil.frb.org/research-and-data/real-time-center/survey-of-professional-forecasters/2010/survq110.cfm; last accessed Mar. 22, 2010.
- Forest Inventory and Analysis (FIA). 2008. Alabama Inventory Data Status 2008. Available online at http://srsfia2.fs.fed.us/states/al/tables/AL\_2008\_tables.shtml; last accessed Apr. 21, 2010.
- Forster, D.L. 2006. An Overview of U.S. Farm Real Estate Markets. The Ohio State University Department of Agricultural, Environmental and Development Economics AEDE-WP-0042-06. 33 p.
- Grado, S.C., D.L. Grebner, R.J. Barlow, and R.O. Drier. 2009. Valuing habitat regime models for the red-cockaded woodpecker in Mississippi. Journal of Forest Economics. 15(2009):277-295.
- Haymond, J.L. 1988. NIPF opinion leaders: what do they want? Journal of Forestry. 86(4):30-35.
- Hodge, S.S., and L. Southard. 1992. A Profile of Virginia NIPF Landowners: results of a 1991 survey. Virginia Forests. 47(4):7-11.
- Kendra, A., and R.B. Hull. 2005. Motivations and Behaviors of New Forest Owners in Virginia. Forest Science. 51(2):142-154.

- Kline, J.D., and R.J. Alig. 1999. Does Land Use Planning Slow the Conversion of Forest and Farm Land? Growth and Change. 30(1):3-22.
- Krupa, K., and C. Barneard. 2001. Agricultural Resources and Environmental Indicators, Chapter 1.2: Farm Real Estate Values, Rents, and Taxes. USDA Economic Research Service Agricultural Economic Report AH722. 20 p.
- Lubowski, R.N., M. Vesterby, S. Bucholtz, A. Baez, and M.J. Roberts. 2006. Major Uses of Land in the United States, 2002. USDA Economic Research Service Agricultural Economic. Report EIB-14. 54 p.
- Mather, A.S. 2001. Forests of consumption: postproductivism, postmaterialism, and the postindustrial forest. Environment and Planning C: Government and Policy. 19(2):249-268
- Mills, W.L. 1988. Forestland: Investment attributes and diversification potential. Journal of Forestry. 86(1):19-24.
- Newman, D., and D. Wear. 1993. Production economics of private forestry: a comparison of industrial and non-industrial forest owners. American Journal of Agricultural Economics. 75(3):674-684.
- Pan, Y., Y. Zhang, and B.J. Butler. 2007. Trends among family forest owners in Alabama, 1994-2004. Southern Journal of Applied Forestry. 31(3):117-123.
- Prevatt, J.W. 2000. 2000 Alabama farmland values and cash rents. Alabama Cooperative Extension System. AE-CLV-00. 31 p.
- Raunikar, R., J. Buongiorno. 2006. Willingness to pay for forest amenities: The case of non-industrial owners in the south central United States. Ecological Economics. 56(2006):132-143.
- Redmond, C.H. and F.W. Cubbage. 1988. Portfolio Risk and Returns from Timber Asset Investments. Land Economics. 64(4):325-337.
- Scarpa, R., J. Buongiorno, J. Hseu, and K.L. Abt. 2000. Assessing the non-timber value of forests: A revealed-preference, hedonic model. Journal of Forest Economics. 6(2):83-107.
- Sendak, P., and T. McEvoy. 1989. Recent Trends in Vermont Stumpage Prices. Forest Products Journal. 39(4):20-26.
- Shane, M., W. Liefert, M. Morehart, M. Peters, J. Dillard, D.Torgerson, and W. Edmondson. 2009. The 2008-2009 World Economic Crisis: What It Means for U.S. Agriculture. USDA Economic Research Service Agricultural Economic Report WRS-09-02. 30 p.
- Stenger, A., P. Harou, and S. Navrud. 2009. Valuing environmental goods and services derived from the forests. Journal of Forest Economics. 15(2009):1-14.

- Sun, C., and D. Zhang. 2001. Assessing the Financial Performance of Forestry-Related Investment Vehicles: Capital Asset Pricing Model vs. Arbitrage Pricing Theory. American Journal of Agricultural Economics. 83(3):617-628.
- U.S. Census Bureau. 2009. State & County QuickFacts. Available online at http://quickfacts.census.gov/qfd/states/01000.html; last accessed Mar. 24, 2010.
- United States Department of Agriculture Economic Research Service (USDA). 1999. Agricultural Boom & Bust: Will History Repeat in the 1990's? Available online at www. ers.usda.gov/publications/agoutlook/apr1999/ao260e.pdf; last accessed Mar. 24, 2010.
- United States Department of Agriculture Economic Research Service (USDA). 2004. Alabama Farm Sector Balance Sheet, 1960-2003. Available online at www.ers.usda.gov/ Data/FarmBalanceSheet/fbsdmu.htm; last accessed Mar. 24, 2010.
- United States Department of Agriculture National Agricultural Statistics Service (USDA). 2008. County crop data files. Available online at www.nass.usda.gov/Charts\_and\_Maps/Crops\_County/Data/index.asp; last accessed Mar. 24, 2010.
- United States Department of Agriculture National Agricultural Statistics Service (USDA). 2009. Land Values and Cash Rents 2009 Summary. Available online at http://usda.mannlib.cornell.edu/usda/current/AgriLandVa/AgriLandVa-08-04-2009.pdf; last accessed Mar. 24, 2010.
- United States Department of Agriculture Economic Research Service (USDA). 2010. Farm Income and Costs: Farm Sector Income Forecast. Available online at www.ers. usda.gov/Data/FarmBalanceSheet/fbsdmu.htm; last accessed Mar. 24, 2010.
- Wear, D.H., and J.G. Greis. 2002. Southern Forest Resource Assessment. Southern Research Station. Technical Report SRS-53. 635 p.
- Wicker, G. 2002. Motivation for private forest landowners. P. 225-237 in Southern Forest Resource Assessment, Wear, D., and J. Greis (eds.). USDA Forest Service Southern Research Station.
- Zhang, Y., D. Zhang, and J. Schelhas. 2005. Small-scale nonindustrial private forest ownership in the United States: rationale and implications for forest management. Silva Fennica. 39(3):443-454.
- Zhou, N. 2010. An Econometric Analysis of Alabama Rural Land Values. M. Sc. thesis, School of Forestry and Wildlife Sciences, Auburn University, Auburn, AL. 103 p.