Introduction
This science update summarizes the findings of the statewide annual inventory of the forest resource attributes in Texas conducted by the Southern Forest Inventory and Analysis (FIA) Program in cooperation with the Texas A&M Forest Service. The 254 counties of Texas are consolidated into seven FIA survey units—southeast (unit 1), northeast (unit 2), north central (unit 3), south (unit 4), west central (unit 5), northwest (unit 6), and west (unit 7). East Texas is made up of units 1 and 2 with a total of 43 counties, while central and west Texas consist of units 3 through 7 (fig. 1). This overview represents the 2003 to 2012 moving average for east Texas provided by the remeasurement of annual inventory plots.

Forest Area
Forest area amounted to 12.1 million acres in 2012 and occupied 56 percent of the total land area in east Texas (table 1). Nearly 12.0 million acres, or 99 percent, of the forest land is considered timberland. The area of forest land in east Texas has remained relatively stable since 1992 (Cooper and Bentley 2012).

Forest Ownership
Ownership of east Texas’ 11.9 million acres of timberland has remained stable with notable exceptions. Nonindustrial private landowners still control the majority (54 percent) of east Texas’ 11.9 million acres of timberland, and public agencies (Federal, State and other) hold only a small percentage (9 percent) (fig. 2). Forest industry’s divestiture of timberland, and its acquisition by other

Table 1—Area by land class and survey year, east Texas, 2003 to 2012

<table>
<thead>
<tr>
<th>Land class</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thousand acres</td>
<td></td>
<td></td>
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<td></td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>Timberland</td>
<td>11,663</td>
<td>11,738</td>
<td>11,847</td>
<td>11,907</td>
<td>11,955</td>
<td>11,961</td>
<td>11,949</td>
<td>11,957</td>
<td>11,931</td>
<td>11,922</td>
</tr>
<tr>
<td>Other/reserved</td>
<td>135</td>
<td>120</td>
<td>119</td>
<td>125</td>
<td>122</td>
<td>128</td>
<td>127</td>
<td>128</td>
<td>125</td>
<td>125</td>
</tr>
<tr>
<td>Total forest land</td>
<td>11,865</td>
<td>11,908</td>
<td>12,009</td>
<td>12,092</td>
<td>12,116</td>
<td>12,126</td>
<td>12,124</td>
<td>12,128</td>
<td>12,092</td>
<td>12,071</td>
</tr>
<tr>
<td>Nonforest land</td>
<td>9,592</td>
<td>9,564</td>
<td>9,455</td>
<td>9,388</td>
<td>9,360</td>
<td>9,352</td>
<td>9,355</td>
<td>9,351</td>
<td>9,384</td>
<td>9,401</td>
</tr>
<tr>
<td>Total land area</td>
<td>21,456</td>
<td>21,471</td>
<td>21,464</td>
<td>21,480</td>
<td>22,133</td>
<td>22,238</td>
<td>22,272</td>
<td>22,260</td>
<td>21,476</td>
<td>21,472</td>
</tr>
<tr>
<td>Percent forested</td>
<td>55</td>
<td>55</td>
<td>56</td>
<td>56</td>
<td>55</td>
<td>55</td>
<td>54</td>
<td>54</td>
<td>56</td>
<td>56</td>
</tr>
</tbody>
</table>

Numbers in rows and columns may not sum to totals due to rounding.
corporate owners, continued into 2012 (fig. 3). Forest industry-held land has decreased by 87 percent since 2003 and stood at 4 percent of timberland in 2012, while other corporate owners such as Timber Investment Management Organizations (TIMOs) and Real Estate Investment Trusts (REITs) increased by 289 percent to hold 33 percent of timberland.

### Forest-Type Composition

Hardwood forest types comprise the majority of timberland area in east Texas, accounting for 6.5 million acres (fig. 4). Softwood forest types occupy 5.3 million acres of east Texas’ timberland area. Loblolly-shortleaf pine is the most abundant forest-type group with 5.1 million acres and comprises the majority (96 percent) of all softwood forest-types. East Texas’ softwood timberland area is split nearly equally between natural pine stands (2.6 million acres) and planted pine stands (2.7 million acres). Oak-hickory is the predominant hardwood forest-type group with 2.8 million acres, followed by oak-pine (1.4 million acres) and oak-gum-cypress (1.4 million acres).

### Inventory Volume

Total all-live volume on timberland was 17.5 billion cubic feet. Inventory volume has remained relatively stable, increasing slightly from 16.8 billion cubic feet recorded at the start of the annualized forest inventory in 2003 (fig. 5). In 2012, all-live volume in softwood species amounted to 9.7 billion cubic feet, while hardwood species totaled 7.8 billion cubic feet. The loblolly-shortleaf pine forest-type group accounted for 9.4 billion cubic feet (97 percent) of the all-live softwood volume. Since 2003, volume for forest industry has decreased from 4.5 billion cubic feet to 610.7 million cubic feet in 2012 (fig. 6), following the divestiture of forest acreage previously mentioned. During this same time, volume for other corporate ownership increased from 1.2 billion cubic feet to almost 5.0 billion cubic feet.
All-live volume of softwoods has increased in most diameter classes since 2003, with the largest increases occurring in the 5.0–6.9, 7.0–8.9, and 9.0–10.9 inch classes (fig. 7). Volume by 2-inch diameter class shows the majority (60 percent) is centered within the 7.0- to 16.9-inch diameter classes. All-live volume of hardwoods by diameter classes has remained fairly stable since 2003 (fig. 8).

**Annual Growth, Removals, and Mortality**

In 2012, total average annual net growth for all-live trees on timberland was 700.5 million cubic feet (fig. 9). Total annual removals for all-live trees on timberland were 622.5 million cubic feet per year, while mortality averaged 285.5 million cubic feet per year. Average annual net growth for all-live softwood species on timberland averaged 603.6 million cubic feet per year, a decrease of 9 percent since 2006. Average annual softwood removals were 465.8 million cubic feet per year, a decline of 15 percent since 2006, while average annual softwood mortality was 110.8 cubic feet per year, showing an 89 percent increase during the same timeframe. Average annual net growth for hardwood species averaged 96.9 million cubic feet per year, a striking 74 percent decrease since 2006. Average annual removals of hardwood species decreased 19 percent from the 2006 data to 156.7 million cubic feet per year. Average annual hardwood mortality, on the other hand, increased 286 percent since 2006 to 174.7 million cubic feet per year.
Hardwood Growth and Mortality

Hardwood trees exhibit the most marked decreases in net annual growth and increases in net annual mortality for timberland trees in east Texas. Texas has experienced repeated, severe droughts, most notably from 2005 to 2006 and 2010 to 2011, with 2011 being the driest year ever recorded in the State. The ratio of hardwood net annual growth to annual mortality has steadily decreased since 2006 (fig. 10). When this ratio is greater than one, it indicates that the forests are growing more volume annually than is lost to natural mortality. This ratio drops below one for hardwoods in east Texas in 2011 and decreased further in 2012, meaning that more volume was being lost to mortality each year than was being gained from growth. Looking more closely, we can see that hard-woods growing in the southeast survey unit of east Texas have been particularly hard-hit, possibly due to the landfalls of Hurricanes Rita (2005) and Ike (2008). Growth to mortality ratios dropped below one in southeast Texas in 2010 and have continued to decline (fig. 10).

Literature Cited


How to Cite This Publication