

FORESTRY STAFFING OF INDUSTRIAL  
WOOD-BASED COMPANIES:  
EXPERIENCES OF SEVENTY LEADING U.S. FIRMS

by

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Staffing of public and private forestry programs is a topic of study that seldom finds its way into the forestry literature. Information about an appropriate number of foresters to be assigned to a program area is frequently awash in the murky waters which typically engulf highly charged administrative efforts to design and implement forestry programs. In the private sector, such information is usually proprietary. But the question still exists: How many foresters of various expertise does it take to do the job? Questions of this nature were recently posed to the authors by a timberland executive associated with a major U.S. wood-based corporation --- an administrator faced with the bleak task of reducing the number of company employed foresters. Of fundamental concern was how slim a forestry staff can we operate with --- yet remain competitive with other companies, ensure the long-term productivity of our forests, and maintain a continuous supply of timber to our mills? Our response was that information of the type requested was virtually nonexistent. The company executive's suggestion: why not explore the forestry staffing of wood-based companies operating in the U.S. So we did!

Eighty-Two Companies Contacted

The vice-presidents in charge of timberlands, or their representatives, of 82 leading U.S. wood-based firms were contacted in early 1987. The firms were not randomly selected; they were, however, selected so as to be geographically dispersed throughout the nation and to be representative of the "small" as well as the "giants" of the industry. Of the companies selected, 17 percent were located in or had regional headquarters in the North, 63 percent were in the South and 20 percent in the West. They ranged in total sales from less than \$10 million to more than \$6 billion; produced 40 million to nearly 3 billion board feet of lumber per company; employed anywhere from one to more than 370 foresters per company; and owned from 2,000 to over 6 million acres of timberland. Combined, the 70 responding companies owned 49.4 million acres of timberland --- or 72 percent of the nation's industrially owned forest land.

The companies were asked to provide information of the following nature: how many foresters do you employ? To what region of the U.S. are these foresters assigned? What are their primary responsibilities (manager of company-owned land, procurement foresters, service foresters, administrators or technical staff at divisional or regional headquarters)? And how much company timberland are these foresters responsible for managing (by region)?

A significant concern to the study was the portion of a company's timberland staff that should be included under the ever widening definition of "forester." To avoid pitfalls associated with an attempt to define "forester," we simply stated: "By forester we mean persons doing professional forestry work as you [company executive] might define it. They may or may not have a college degree in forestry." Such an approach enabled a focus on forestry staff responsibilities; not on educational background.

#### How Many Foresters, Where Located and What Do They Do?

All the responding companies had a professional forestry staff--- however small that staff might be (one company had one forester). Of the companies owning timberland, 93 percent had a company timberlands staff; seven percent did not. More than eight out of ten companies (84 percent) had a wood procurement staff; only two-thirds of the companies in the West had such a staff. Sixty-one percent of the responding companies did not have a service forester staff to assist private woodland owners. These were present in only 10 percent of Western companies, while in the North and South the percentage was 50 and 54, respectively.

A total of 3,569 foresters were employed by the 70 responding companies (Table 1). Excluding the 445 staff and administrative foresters located at central or regional headquarters, 71 percent of the foresters were located in the South, 12 percent in the North and 17 percent in the West. The most common work orientation of foresters was management of company-owned timberland, namely 1,711 foresters (48 percent). The most common work orientation of foresters in each region (excluding staff-administrative foresters) was also company land management; in the West over three-quarters of the foresters were so employed. Of the 2,210 Southern industrial foresters represented, over 44 percent were involved in procurement of timber from noncompany land. As a proportion of the total, relatively few foresters had as their primary responsibility the provision of forestry services to other private landowners (some companies, however, view service forestry programs as very important; 36 such foresters were employed by one company, 21 by another).

Placing industrial forester responsibilities into neat and well defined boxes can be misleading. In responding, company officials were asked to categorize their forestry staff according to "primary" responsibility. Even that caused problems for some. For example: "... some of our forest professionals at the local level are responsible for both wood procurement and timberlands management function ... a dual role," "... all our foresters are closely involved on a day-to-day basis in serving private landowners," "...all of our forestry staff handle company land, wood procurement, logging and road crews..." and "...in our organization, all foresters serve a dual role as procurement and company-land managers." Flexibility in work assignment is obviously a necessary virtue to many industrial employers of foresters.

### Foresters Managing Company-Owned Timberland

The 1,711 foresters having company-owned land as their primary concern were responsible for over 49.4 million acres of timberland. The latter was owned by 62 companies and was distributed as follows: 17 percent-- North; 63 percent -- South; and 20 percent -- West. Some companies owned as little as 2,000 to 6,000 acres, while others had regional units that encompassed two and three million acres each. The average acreage owned per responding company was 617.5 thousand (473.2 thousand -- North, 795.2 thousand -- South and 429.2 thousand -- West). Companies often owned timberland in more than one region.

Foresters charged with the management of company land shoulder significant corporate responsibilities. How much timberland does a forester manage? That depends. For the companies studied here, each forester was on average responsible for slightly more than 28,800 acres (Table 2). In the North, the average area managed per forester was nearly 8,000 acres more (36,442 acres) than the national average, while in the West it is over 4,000 acres less (24,618 acres). The average area managed per industrial forester in the South (28,740 acres) was almost the national average.

Companies varied tremendously in terms of the amount of timberland managed per forester. Some relatively small holdings (2,000, 6,000, 16,000 and 60,000 acres) reportedly do not have a forester directly assigned to their management. One company reported one million acres of timberland with only six foresters assigned to its management. At the other extreme, a company owning more than 700,000 acres of timberland assigned an average of 7,200 acres to each of its 110 company-land management foresters. So too, a company owning in excess of 1.4 million acres reported that 115 foresters were responsible for an average of 12,800 acres each.

Does timberland area managed per forester vary in any consistent fashion as total company ownership increases or decreases? Yes --- to some extent. Except for the 900 thousand to 1.2 million and the 1.8 million acre plus categories, the timberland managed per forester declines as company-wide timberland ownership increases (Figure 1). Masked by such national averages, however, are important regional variations. In the North, for example, acres managed per forester increases through three broad categories, while in the South and West there is no discernable trend (Table 2). The relatively few companies represented in the higher land ownership categories of the North and West make further inferences about acres managed per forester very hazardous -- even though large timberland areas are represented in each category.

### Industrial Forestry Staff Worthy of More Study

Industrial foresters are an essential ingredient to smooth and efficient operation of the nation's wood-based companies. The nature of their management responsibilities have long been ignored as a formal area of administrative study. They are large in number (nearly 3,600 identified

here, 3,865 members of the Society of American Foresters worked for private industry in 1986), and they assume a variety of important responsibilities. Those associated primarily with company timberland and identified here have been entrusted with the professional management of over 72 percent of the nation's industrially owned timberland --- a truly staggering responsibility. Service and wood procurement foresters (over 1,400 of whom were identified here) are frequently the industrial forestry sector's response to better management of significant portions of the nation's nonindustrial private forests.

In sum, responsibilities assigned to industrial forestry staffs are significant; they deserve the attention of researchers interested in patterns of administration and organizational structure. Aggregate information on staffing patterns can help wood-based companies assess their own staffing situation relative to industry-wide averages; it can also be useful to educators and forestry students as they teach and learn the skills required to succeed in industrial forestry careers. With more and better information on the forms of staffing arrangements best suited to firms of differing size, market interests and resource endowments, foresters employed by many of the nation's wood-based enterprises can be guided toward becoming an even more integral and productive part of the nation's industrial forestry scene. The prompt, enthusiastic and thoughtful response received from the 70 companies participating in this study, certainly suggests a need for such information.

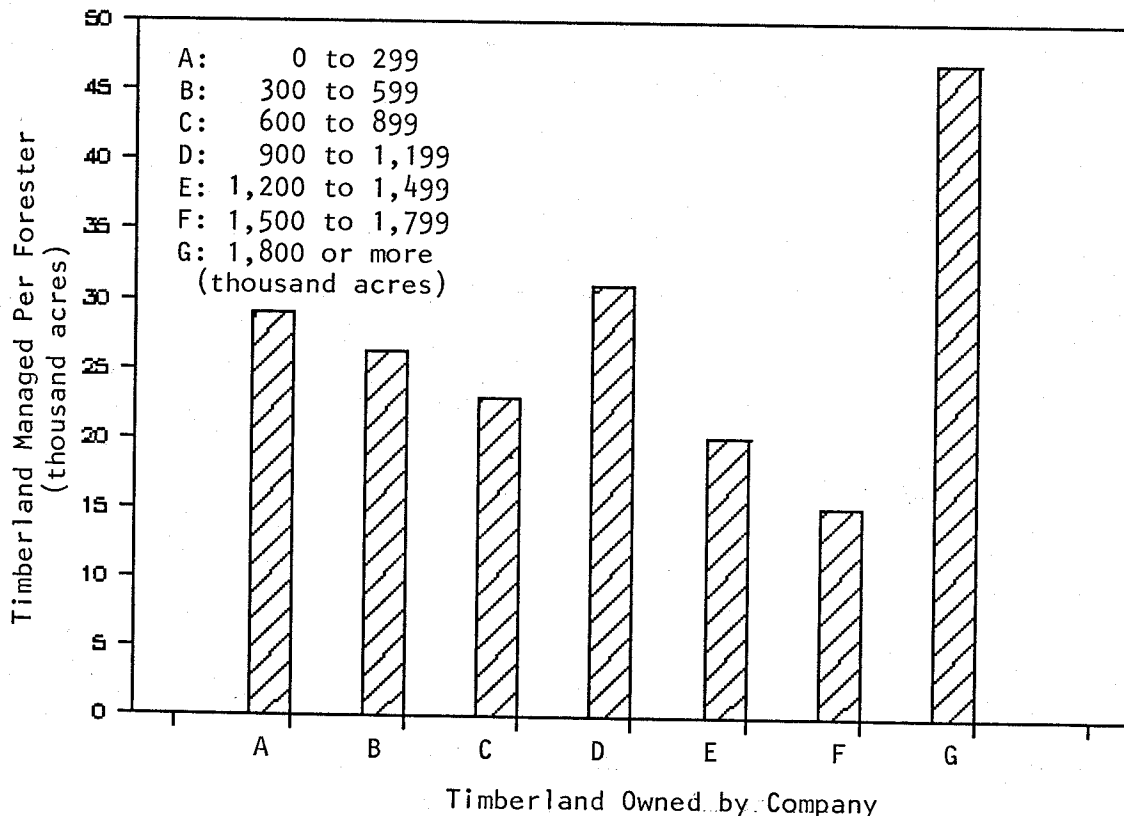


Figure 1. Company-owned Timberland Managed Per Forester, by Area of Timber Owned by Company. 1986.

Table 1. Industrial Foresters Employed by Seventy Leading U.S. Wood-Based Companies, by Regional Location and Primary Responsibility. 1986.

| Forester Responsibility                    | North     | South | West  | Total<br>Nationwide |       |
|--|-----------|-------|-------|---------------------|-------|
|  | (Percent) |       |       |                     |       |
| Adminstrator/Staff<br>Central Headquarters | -         | -     | -     | -                   | 12.5  |
| Manage Company<br>Owned/Leased Land        | 60.3      | 48.8  | 75.5  | 54.8                | 47.9  |
| Procure Timber from<br>Noncompany Land     | 32.4      | 44.3  | 23.0  | 39.2                | 34.3  |
| Provide Services to<br>Private Landowners  | 7.3       | 6.9   | 1.5   | 6.0                 | 5.3   |
| TOTAL                                      | 100.0     | 100.0 | 100.0 | 100.0*              | 100.0 |

\*Excludes administrators and staff at central headquarters.

Note: Reflects a total of 3,569 industrial foresters (North - 383, South - 2,210, West - 531) of which 445 are staff or general program administrators.

Table 2. Industrial Foresters Managing Timberland of Sixty-Two Leading U.S. Wood-Based Companies, by Region and Area Managed per Forester. 1986.

| Region and Company<br>Timberland Area (acres) | Regional<br>Units-<br>Companies | Timberland<br>Area (Acres,<br>thousands) | Timberland<br>Managed Per<br>Forester |
|---|---------------------------------|--|---------------------------------------|
| NORTH   |                                 |  |                                       |
| Less than 300,000                             | 10                              | 1,403                                    | 26,592                                |
| 300,000 to 1,000,000                          | 6                               | 3,653                                    | 32,910                                |
| More than 1,000,000                           | 2                               | 3,462                                    | 48,761                                |
| All Companies                                 | 18                              | 8,518                                    | 36,442                                |
| SOUTH   |                                 |  |                                       |
| Less than 300,000                             | 11                              | 1,189                                    | 30,487                                |
| 300,000 to 1,000,000                          | 18                              | 10,541                                   | 23,321                                |
| More than 1,000,000                           | 10                              | 19,281                                   | 32,791                                |
| All Companies                                 | 39                              | 31,011                                   | 28,740                                |
| WEST  |                                 |  |                                       |
| Less than 300,000                             | 14                              | 1,753                                    | 28,274                                |
| 300,000 to 1,000,000                          | 7                               | 3,743                                    | 23,841                                |
| More than 1,000,000                           | 3                               | 4,376                                    | 24,044                                |
| All Companies                                 | 24                              | 9,872                                    | 24,618                                |
| NATIONWIDE                                    |                                 |  |                                       |
| Less than 300,000                             | 35                              | 4,245                                    | 28,300                                |
| 300,000 to 1,000,000                          | 31                              | 17,937                                   | 24,917                                |
| More than 1,000,000                           | 15                              | 27,119                                   | 32,246                                |
| All Companies                                 | 81                              | 49,401                                   | 28,814                                |

Note: Includes only foresters directly assigned to management of company-owned lands. Excluded are procurement foresters, foresters providing services to other private landowners, and administrative staff located at regional or central headquarters. Timberland area managed may be for a single region of a multi-regional company.

APPENDIX TABLES

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Table A. Industrial Forestry Staff, by Responsibility &amp; Region. 1986.

| Company and Region | Forester Responsibility |                 |                  |         |       | Timberland<br>Managed<br>(Thousand<br>acres) |
|--------------------|-------------------------|-----------------|------------------|---------|-------|--|
|                    | Headquar-<br>ter Staff  | Company<br>Land | Procure-<br>ment | Service | Total |  |
| North              | 2                       | 1               | 3                | 1       | 7     | 76.0   |
| South              |                         | 0               | 4                | 0       | 4     | 0.0  |
| Total              | 2                       | 1               | 7                | 1       | 11    | 76.0   |
| South              |                         | 0               | 5                | 4       | 9     | 60.0   |
| Total              | 6                       | 0               | 5                | 4       | 15    | 60.0   |
| West               |                         | 2               | 0                | 0       | 2     | 200.0  |
| Total              | 3                       | 2               | 0                | 0       | 5     | 200.0  |
| South              |                         | 1               | 5                | 1       | 7     | 50.0   |
| Total              | 1                       | 1               | 5                | 1       | 8     | 50.0   |
| West               |                         | 10              | 3                | 0       | 13    | 132.0  |
| Total              | 4                       | 10              | 3                | 0       | 17    | 132.0  |
| South              |                         | 18              | 8                | 6       | 32    | 418.0  |
| Total              | 3                       | 18              | 8                | 6       | 32    | 418.0  |
| West               |                         | 4               | 1                | 0       | 5     | 78.0   |
| Total              | 1                       | 4               | 1                | 0       | 6     | 78.0   |
| South              |                         | 6               | 11               | 2       | 19    | 200.0  |
| Total              | 1                       | 6               | 11               | 2       | 20    | 200.0  |
| North              | 1                       | 0               | 0                | 0       | 1     | 16.0   |
| Total              | 1                       | 0               | 0                | 0       | 1     | 16.0   |
| South              |                         | 1               | 4                | 0       | 5     | 35.0   |
| Total              | 1                       | 1               | 4                | 0       | 6     | 35.0   |
| North              |                         | 4               | 4                | 4       | 12    | 310.0  |
| Total              | 1                       | 4               | 4                | 4       | 13    | 310.0  |
| South              |                         | 20              | 10               | 3       | 33    | 730.0  |
| Total              | 9                       | 20              | 10               | 3       | 42    | 730.0  |
| South              |                         | 52              | 38               | 5       | 95    | 1,083.0                                      |
| Total              | 1                       | 52              | 38               | 5       | 96    | 1,083.0                                      |
| South              |                         | 8               | 23               | 0       | 31    | 600.0  |
| Total              | 5                       | 8               | 23               | 0       | 36    | 600.0  |
| South              |                         | 50              | 22               | 0       | 72    | 1,100.0                                      |
| Total              | 2                       | 50              | 22               | 0       | 74    | 1,100.0                                      |
| West               |                         | 0               | 0                | 0       | 2     | 0.0  |
| Total              | 2                       | 0               | 0                | 0       | 2     | 0.0  |
| West               |                         | 0               | 1                | 0       | 1     | 0.0  |
| Total              | 1                       | 0               | 1                | 0       | 2     | 0.0  |
| North              |                         | 5               | 0                | 0       | 5     | 100.0  |
| West               |                         | 5               | 0                | 0       | 5     | 100.0  |
| Total              | 5                       | 10              | 0                | 0       | 15    | 200.0  |
| North              |                         | 0               | 0                | 0       | 0     | 0  |
| Total              | 1                       | 0               | 0                | 0       | 1     | 0  |
| North              |                         | 14              | 1                | 2       | 17    | 358.0  |
| Total              | 6                       | 14              | 1                | 2       | 23    | 358.0  |
| South              |                         | 30              | 27               | 5       | 62    | 1,010.0                                      |
| Total              | 7                       | 30              | 27               | 5       | 69    | 1,010.0                                      |
| West               |                         | 2               | 0                | 0       | 2     | 60.0   |
| Total              | 1                       | 2               | 0                | 0       | 3     | 60.0   |
| West               |                         | 4               | 1                | 2       | 6     | 233.0  |
| Total              | 1                       | 4               | 1                | 2       | 7     | 233.0  |
| South              |                         | 26              | 33               | 0       | 59    | 686.0  |
| Total              | 14                      | 26              | 33               | 0       | 73    | 686.0  |
| North              |                         | 16              | 1                | 1       | 18    | 800.0  |
| South              |                         | 98              | 173              | 11      | 282   | 3,200.0                                      |
| West               |                         | 6               | 4                | 0       | 10    | 1,000.0                                      |
| Total              | 47                      | 120             | 178              | 12      | 357   | 5,000.0                                      |
| South              |                         | 6               | 15               | 0       | 21    | 235.0  |
| Total              | 3                       | 6               | 15               | 0       | 24    | 235.0  |



|       |    |     |     |    |     |         |  |
|-------|----|-----|-----|----|-----|---------|--|
| North |    |     |     |    |     |         |  |
| Total | 5  | 35  | 5   | 0  | 40  | 2,000.0 |  |
|       |    | 35  | 5   | 0  | 45  | 2,000.0 |  |
| South |    |     |     |    |     |         |  |
| Total | 5  | 15  | 15  | 1  | 31  | 305.0   |  |
|       |    | 15  | 15  | 1  | 36  | 305.0   |  |
| South |    |     |     |    |     |         |  |
| Total | 4  | 21  | 9   | 4  | 34  | 400.0   |  |
|       |    | 21  | 9   | 4  | 38  | 400.0   |  |
| North |    |     |     |    |     |         |  |
| South |    | 12  | 9   | 2  | 23  | 186.6   |  |
| Total | 1  | 5   | 12  | 13 | 30  | 247.4   |  |
|       |    | 17  | 21  | 15 | 54  | 434.0   |  |
| South |    |     |     |    |     |         |  |
| Total | 14 | 24  | 10  | 2  | 36  | 580.0   |  |
|       |    | 24  | 10  | 2  | 50  | 580.0   |  |
| West  |    |     |     |    |     |         |  |
| Total | 1  | 2   | 4   | 2  | 8   | 30.0    |  |
|       |    | 2   | 4   | 2  | 9   | 30.0    |  |
| West  |    |     |     |    |     |         |  |
| Total | 1  | 6   | 0   | 0  | 6   | 132.0   |  |
|       |    | 6   | 0   | 0  | 7   | 132.0   |  |
| North |    |     |     |    |     |         |  |
| South |    | 36  | 9   | 2  | 47  | 1,462.8 |  |
| West  |    | 81  | 129 | 19 | 229 | 4,515.6 |  |
| Total | 72 | 18  | 5   | 0  | 23  | 381.6   |  |
|       |    | 135 | 143 | 21 | 371 | 6,360.0 |  |
| South |    |     |     |    |     |         |  |
| Total | 1  | 1   | 3   | 0  | 4   | 25.0    |  |
|       |    | 1   | 3   | 0  | 5   | 25.0    |  |
| South |    |     |     |    |     |         |  |
| West  |    | 110 | 15  | 0  | 125 | 792.0   |  |
| Total | 2  | 32  | 0   | 0  | 32  | 408.0   |  |
|       |    | 142 | 15  | 0  | 159 | 1,200.0 |  |
| West  |    |     |     |    |     |         |  |
| Total | 3  | 0   | 2   | 0  | 2   | 0.0     |  |
|       |    | 0   | 2   | 0  | 5   | 0.0     |  |
| South |    |     |     |    |     |         |  |
| Total | 7  | 16  | 16  | 2  | 34  | 575.0   |  |
|       |    | 16  | 16  | 2  | 41  | 575.0   |  |
| West  |    |     |     |    |     |         |  |
| Total | 6  | 24  | 0   | 0  | 24  | 502.0   |  |
|       |    | 24  | 0   | 0  | 30  | 502.0   |  |
| North |    |     |     |    |     |         |  |
| South |    | 5   | 10  | 0  | 15  | 48.4    |  |
| West  |    | 15  | 43  | 2  | 60  | 154.9   |  |
| Total |    | 25  | 41  | 4  | 70  | 764.7   |  |
|       |    | 45  | 94  | 6  | 145 | 968.0   |  |
| South |    |     |     |    |     |         |  |
| Total | 6  | 14  | 4   | 0  | 18  | 430.0   |  |
|       |    | 14  | 4   | 0  | 24  | 430.0   |  |
| South |    |     |     |    |     |         |  |
| Total | 5  | 17  | 6   | 2  | 25  | 600.0   |  |
|       |    | 17  | 6   | 2  | 30  | 600.0   |  |
| North |    |     |     |    |     |         |  |
| South |    | 28  | 21  | 1  | 50  | 811.0   |  |
| Total | 7  | 0   | 18  | 0  | 18  | 0.0     |  |
|       |    | 28  | 39  | 1  | 75  | 811.0   |  |
| North |    |     |     |    |     |         |  |
| Total | 1  | 0   | 1   | 0  | 1   | 0.0     |  |
|       |    | 0   | 1   | 0  | 2   | 0.0     |  |
| West  |    |     |     |    |     |         |  |
| Total | 1  | 0   | 2   | 0  | 2   | 6.0     |  |
|       |    | 0   | 2   | 0  | 3   | 6.0     |  |
| North |    |     |     |    |     |         |  |
| Total | 1  | 2   | 2   | 0  | 4   | 90.0    |  |
|       |    | 2   | 2   | 0  | 5   | 90.0    |  |
| North |    |     |     |    |     |         |  |
| South | 4  | 5   | 6   | 2  | 17  | 260.0   |  |
| Total | 3  | 4   | 17  | 0  | 24  | 135.0   |  |
|       | 7  | 9   | 23  | 2  | 41  | 395.0   |  |
| North |    |     |     |    |     |         |  |
| South |    | 8   | 6   | 0  | 12  | 292.8   |  |
| Total | 5  | 15  | 4   | 0  | 19  | 439.2   |  |
|       |    | 23  | 10  | 0  | 38  | 732.0   |  |
| West  |    |     |     |    |     |         |  |
| Total | 1  | 0   | 8   | 0  | 8   | 0.0     |  |
|       |    | 0   | 8   | 0  | 9   | 0.0     |  |
| West  |    |     |     |    |     |         |  |
| Total | 3  | 4   | 0   | 0  | 4   | 200.0   |  |
|       |    | 4   | 0   | 0  | 7   | 200.0   |  |
| North |    |     |     |    |     |         |  |
| South |    | 2   | 3   | 1  | 6   | 58.2    |  |
| Total | 8  | 11  | 9   | 2  | 22  | 492.4   |  |
|       |    | 13  | 12  | 3  | 36  | 550.6   |  |
| West  |    |     |     |    |     |         |  |
| Total | 1  | 2   | 1   | 0  | 3   | 100.0   |  |
|       |    | 2   | 1   | 0  | 4   | 100.0   |  |

|       |    |     |     |    |     |         |
|-------|----|-----|-----|----|-----|---------|
| North |    | 9   | 6   | 0  | 15  | 277.0   |
| South |    | 15  | 2   | 1  | 18  | 568.6   |
| West  |    | 19  | 0   | 0  | 19  | 612.4   |
| Total | 13 | 43  | 8   | 1  | 65  | 1,458.0 |
| West  |    | 115 | 4   | 0  | 119 | 1,478.0 |
| Total | 18 | 115 | 4   | 0  | 137 | 1,478.0 |
| West  |    | 10  | 5   | 0  | 15  | 500.0   |
| Total | 1  | 10  | 5   | 0  | 16  | 500.0   |
| South |    | 27  | 5   | 0  | 32  | 1,100.0 |
| Total | 3  | 27  | 5   | 0  | 35  | 1,100.0 |
| South |    | 20  | 2   | 0  | 27  | 1,040.0 |
| Total | 4  | 20  | 2   | 0  | 26  | 1,040.0 |
| North | 6  | 22  | 3   | 1  | 32  | 900.0   |
| South | 11 | 8   | 9   | 1  | 29  | 534.0   |
| West  | 2  | 7   | 0   | 0  | 9   | 240.0   |
| Total | 19 | 37  | 12  | 2  | 70  | 1,674.0 |
| West  |    | 0   | 2   | 0  | 2   | 2.0     |
| Total | 1  | 0   | 2   | 0  | 3   | 2.0     |
| West  |    | 0   | 6   | 0  | 6   | 0.0     |
| Total | 0  | 0   | 6   | 0  | 6   | 0.0     |
| West  |    | 29  | 5   | 0  | 34  | 575.0   |
| Total | 3  | 29  | 5   | 0  | 37  | 575.0   |
| South |    | 0   | 0   | 0  | 0   | 42.0    |
| Total | 0  | 0   | 0   | 0  | 0   | 42.0    |
| North |    | 0   | 9   | 0  | 9   | 0.0     |
| South |    | 50  | 36  | 22 | 108 | 850.0   |
| West  |    | 0   | 5   | 0  | 5   | 0.0     |
| Total | 2  | 50  | 50  | 22 | 124 | 850.0   |
| South |    | 61  | 0   | 0  | 61  | 1,343.0 |
| Total | 16 | 61  | 0   | 0  | 77  | 1,343.0 |
| South |    | 115 | 132 | 20 | 267 | 1,750.0 |
| Total | 14 | 115 | 132 | 20 | 281 | 1,750.0 |
| South |    | 0   | 5   | 0  | 5   |         |
| Total | 1  | 0   | 5   | 0  | 6   | 6.0     |
| North |    | 0   | 4   | 0  | 4   | 0.0     |
| Total | 1  | 0   | 4   | 0  | 5   | 0.0     |
| North |    | 27  | 28  | 11 | 66  | 474.3   |
| South |    | 52  | 41  | 25 | 118 | 892.7   |
| Total | 10 | 79  | 69  | 36 | 194 | 1,367.0 |
| South |    | 54  | 47  | 0  | 101 | 3,139.5 |
| West  |    | 67  | 26  | 0  | 93  | 2,898.0 |
| Total | 23 | 121 | 73  | 0  | 217 | 6,037.5 |
| South | 11 | 12  | 11  | 0  | 34  | 650.0   |
| West  | 8  | 14  | 2   | 0  | 24  | 240.0   |
| Total | 19 | 26  | 13  | 0  | 58  | 890.0   |

Table B. Frequency of Staff Type of Seventy Leading U.S. Wood-Based Companies, by Region and Staff Type. 1986.

| Type of Staff                 | North    | South    | West     | Nationwide |
|-------------------------------|----------|----------|----------|------------|
| Number of Companies (Percent) |          |          |          |            |
| Company Lands Staff           |          |          |          |            |
| Yes                           | 17 ( 94) | 37 ( 92) | 21 ( 91) | 75 ( 93)   |
| No                            | 1 ( 6)   | 3 ( 8)   | 2 ( 9)   | 6 ( 7)     |
| Total                         | 18 (100) | 40 (100) | 23 (100) | 81 (100)   |
| Procurement Forester Staff    |          |          |          |            |
| Yes                           | 19 ( 86) | 39 ( 95) | 19 ( 66) | 77 ( 84)   |
| No                            | 3 ( 14)  | 2 ( 5)   | 10 ( 34) | 15 ( 16)   |
| Total                         | 22 (100) | 41 (100) | 29 (100) | 92 (100)   |
| Service Forester Staff        |          |          |          |            |
| Yes                           | 11 ( 50) | 22 ( 54) | 3 ( 10)  | 36 ( 39)   |
| No                            | 11 ( 50) | 19 ( 46) | 26 ( 90) | 56 ( 61)   |
| Total                         | 22 (100) | 41 (100) | 29 (100) | 92 (100)   |

Note: Administrative staff located at regional or central headquarters is excluded. Observations may be for a single regional location of a multi-regional company. For the company land staff category, only companies owning timberland are included.

Table C. Industrial Foresters Employed by Seventy Leading U.S. Wood-Based Companies, by Regional Location and Primary responsibility. 1986.

| Forester Responsibility                    | North | South | West | Total<br>Nationwide |       |
|--|-------|-------|------|---------------------|-------|
| Adminstrator/Staff<br>Central Headquarters | -     | -     | -    | -                   | 445   |
| Manage Company<br>Owned/Leased Land        | 231   | 1,079 | 401  | 1,711               | 1,711 |
| Procure Timber from<br>Noncompany Land     | 124   | 978   | 122  | 1,224               | 1,224 |
| Provide Services to<br>Private Landowners  | 28    | 153   | 8    | 189                 | 189   |
| TOTAL                                      | 383   | 2,210 | 531  | 3,124               | 3,569 |

Table D. Timberland Ownership of Sixty-Two Leading U.S. Wood-Based Companies, by Region. 1986.

|       | North               | South        | West        |
|-------|---------------------|--------------|-------------|
|       | (Acres - thousands) |              |             |
|       | 16                  | 6            | 2           |
|       | 48                  | 25           | 6           |
|       | 58                  | 35           | 30          |
|       | 76                  | 42           | 60          |
|       | 90                  | 50           | 78          |
|       | 100                 | 60           | 100         |
|       | 186                 | 135          | 100         |
|       | 260                 | 154          | 132         |
|       | 277                 | 200          | 132         |
|       | 292                 | 235          | 200         |
|       | 310                 | 247          | 200         |
|       | 358                 | 305          | 233         |
|       | 474                 | 400          | 240         |
|       | 800                 | 418          | 240         |
|       | 811                 | 430          | 381         |
|       | 900                 | 439          | 408         |
|       | 1,462               | 492          | 500         |
|       | 2,000               | 534          | 502         |
|       |                     | 568          | 575         |
|       |                     | 575          | 612         |
|       |                     | 580          | 765         |
|       |                     | 600          | 1,478       |
|       |                     | 600          | 2,898       |
|       |                     | 650          |             |
|       |                     | 686          |             |
|       |                     | 730          |             |
|       |                     | 792          |             |
|       |                     | 850          |             |
|       |                     | 892          |             |
|       |                     | 1,010        |             |
|       |                     | 1,040        |             |
|       |                     | 1,083        |             |
|       |                     | 1,100        |             |
|       |                     | 1,100        |             |
|       |                     | 1,343        |             |
|       |                     | 1,750        |             |
|       |                     | 3,140        |             |
|       |                     | 3,200        |             |
|       |                     | 4,515        |             |
| Total | 8,518 (17%)         | 31,011 (63%) | 9,872 (20%) |

Note: Company timberland area may be for a single region of a multi-regional company. Total timberland represented by 62 companies is 49,401,000 acres. Total U.S. industrial timberland ownership in 1977 was 68,800,000 acres.

Table E. Industrial Foresters Managing Timberland of Sixty-Two Leading U.S. Wood-Based Companies, by Area Managed, Number of Foresters, Area Managed Per Forester and Region. 1986.

| Company<br>Timberland<br>Area | Number<br>of<br>Foresters | Timberland<br>Managed Per<br>Forester | Region |
|-------------------------------|---------------------------|---------------------------------------|--------|
| (thousand<br>acres)           |                           | (acres)                               |        |
| 2                             | 0                         | 0                                     | W      |
| 6                             | 0                         | 0                                     | W      |
| 6                             | 0                         | 0                                     | S      |
| 16                            | 0                         | 0                                     | N      |
| 25                            | 1                         | 25,000                                | S      |
| 30                            | 2                         | 15,000                                | W      |
| 35                            | 1                         | 35,000                                | S      |
| 42                            | 0                         | 0                                     | S      |
| 48                            | 5                         | 9,600                                 | N      |
| 50                            | 1                         | 50,000                                | S      |
| 58                            | 2                         | 29,000                                | N      |
| 60                            | 0                         | 0                                     | S      |
| 60                            | 2                         | 30,000                                | W      |
| 76                            | 1                         | 76,000                                | N      |
| 78                            | 4                         | 19,500                                | W      |
| 90                            | 2                         | 45,000                                | N      |
| 100                           | 5                         | 20,000                                | N      |
| 100                           | 5                         | 20,000                                | W      |
| 100                           | 2                         | 50,000                                | W      |
| 132                           | 10                        | 13,200                                | W      |
| 132                           | 6                         | 22,000                                | W      |
| 135                           | 4                         | 33,750                                | S      |
| 154                           | 15                        | 10,267                                | S      |
| 186                           | 12                        | 15,500                                | N      |
| 200                           | 2                         | 100,000                               | W      |
| 200                           | 6                         | 33,333                                | S      |
| 200                           | 4                         | 50,000                                | W      |
| 233                           | 4                         | 58,250                                | W      |
| 235                           | 6                         | 39,167                                | S      |
| 240                           | 7                         | 34,285                                | W      |
| 240                           | 14                        | 17,143                                | W      |
| 247                           | 5                         | 49,400                                | S      |
| 260                           | 5                         | 52,000                                | N      |
| 277                           | 9                         | 30,778                                | N      |
| 292                           | 8                         | 36,500                                | N      |
| 305                           | 15                        | 20,333                                | S      |
| 310                           | 4                         | 77,500                                | N      |
| 358                           | 14                        | 25,571                                | N      |
| 381                           | 18                        | 21,167                                | W      |
| 400                           | 21                        | 19,048                                | S      |
| 408                           | 32                        | 12,750                                | W      |
| 418                           | 18                        | 23,222                                | S      |
| 430                           | 14                        | 30,714                                | S      |
| 439                           | 15                        | 29,267                                | S      |
| 474                           | 27                        | 17,556                                | N      |
| 492                           | 11                        | 44,727                                | S      |
| 500                           | 10                        | 50,000                                | W      |
| 502                           | 24                        | 20,917                                | W      |
| 534                           | 8                         | 66,750                                | S      |
| 568                           | 15                        | 37,867                                | S      |
| 575                           | 29                        | 19,828                                | W      |
| 575                           | 16                        | 35,938                                | S      |
| 580                           | 24                        | 24,167                                | S      |
| 600                           | 8                         | 75,000                                | S      |
| 600                           | 17                        | 35,294                                | S      |
| 612                           | 19                        | 32,210                                | W      |
| 650                           | 12                        | 54,167                                | S      |
| 686                           | 26                        | 26,385                                | S      |
| 730                           | 20                        | 36,500                                | S      |
| 765                           | 25                        | 30,600                                | W      |
| 792                           | 110                       | 7,200                                 | S      |
| 800                           | 16                        | 50,000                                | N      |
| 811                           | 28                        | 28,964                                | N      |
| 850                           | 50                        | 17,000                                | S      |
| 892                           | 52                        | 17,154                                | S      |
| 900                           | 22                        | 40,909                                | N      |
| 1,010                         | 30                        | 33,667                                | S      |
| 1,040                         | 20                        | 52,000                                | S      |
| 1,083                         | 52                        | 20,827                                | S      |
| 1,100                         | 50                        | 22,000                                | S      |
| 1,100                         | 27                        | 40,741                                | S      |
| 1,343                         | 61                        | 22,016                                | S      |
| 1,462                         | 36                        | 40,611                                | N      |
| 1,478                         | 115                       | 12,852                                | W      |
| 1,750                         | 115                       | 15,217                                | S      |
| 2,000                         | 35                        | 57,143                                | N      |
| 2,898                         | 67                        | 43,254                                | W      |
| 3,140                         | 54                        | 58,148                                | S      |
| 3,200                         | 98                        | 32,653                                | S      |
| 4,515                         | 81                        | 55,741                                | S      |
| SUM 49,401                    | 1,711                     | 28,873                                | -      |

Note: Includes only foresters directly assigned to management of company-owned lands. Excluded are procurement foresters, foresters providing services to other private landowners, and administrative staff located at regional or central headquarters. Company timberland area may be for a single region of a multi-regional company. Regions are N = North, S = South, W = West.

Table F. Industrial Foresters Managing Timberland of Sixty-Two Leading U.S. Wood-based Companies, by Company Timberland Area and Timberland Area managed Per Forester. 1986.

| Company Timberland Area (acres, thousands) | Timberland Managed Per Forester | Timberland Area (acres, thousands) | Number of Foresters | Regional Units-Companies |
|--|---------------------------------|------------------------------------|---------------------|--------------------------|
| 0 to 299                                   | 28,967                          | 4,345                              | 150                 | 35                       |
| 300 to 599                                 | 26,187                          | 8,249                              | 315                 | 18                       |
| 600 to 899                                 | 22,945                          | 8,788                              | 383                 | 12                       |
| 900 to 1,199                               | 31,010                          | 6,233                              | 201                 | 7                        |
| 1,200 to 1,499                             | 20,203                          | 4,283                              | 212                 | 3                        |
| 1,500 to 1,799                             | 15,217                          | 1,750                              | 115                 | 1                        |
| 1,800 or more                              | 47,024                          | 15,753                             | 335                 | 5                        |
| Total                                      | 28,873                          | 49,401                             | 1,711               | 81                       |

Note: Includes only foresters directly assigned to management of company-owned lands. Excluded are procurement foresters, foresters providing services to other private landowners, and administrative staff located at regional or central headquarters. Timberland area managed may be for a single region of a multi-regional company.