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# ATLAS OF UNITED STATES TREES

Volume 5. Florida

by Elbert L. Little, Jr.





# **ATLAS OF UNITED STATES TREES**

## **Volume 5. Florida**

by

**Elbert L. Little, Jr., Chief Dendrologist (Retired)**

**Timber Management Research  
USDA Forest Service, Washington, D.C.**

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1361, 22 p., 268 maps.**

This is the fifth volume of an Atlas with maps showing the natural distribution or range of the native tree species of the continental United States. Together, the 5 volumes contain 1,205 maps of 655 native tree species. Florida merits a separate volume because it has more native tree species than any other State (except Hawaii), and because it has a large number of tropical species found in no other State. The 262 maps of native trees of Florida include 13 maps of conifers and 151 maps of temperate hardwoods, reproduced from portions of maps in Volumes 1 and 4 on the same scale, 6 to a page. Large maps of 98 species of tropical hardwoods of South Florida are added. Ten listed species of hawthorn (*Crataegus*) increase the State total to about 272. Also, for further reference, the range of each species, both within Florida and beyond, is summarized in text.

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General  
Map No.

- 1 North America. Base map with names of States of the United States, Provinces and other subdivisions of Canada, States of Mexico, and names of additional countries.
- 2 West Indies. Southern Florida with reference to the principal islands.
- 3 Southeastern United States (contiguous). Base map with names of counties.
- 4 Florida, with names of counties, county seats, and physical features.
- 5 Florida, showing National Forests, Everglades National Park, and Biscayne National Monument.
- 6 Florida, Plant Hardiness Zones.

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#### Conifers

Map No.

- |    |   |    |  |
|----|---|----|--|
| 1  | <i>Chamaecyparis thyoides</i> (L.) B.S.P., Atlantic white-cedar | 20 | <i>Alnus serrulata</i> (Ait.) Willd., hazel alder                |
| 2  | <i>Juniperus silicicola</i> (Small) Bailey, southern redcedar   | 21 | <i>Amelanchier arborea</i> (Michx. f.) Fern., downy serviceberry |
| 3  | <i>Juniperus virginiana</i> L., eastern redcedar                | 22 | <i>Aralia spinosa</i> L., devils-walkingstick                    |
| 4  | <i>Pinus clausa</i> (Chapm.) Vasey, sand pine                   | 23 | <i>Asimina triloba</i> (L.) Dunal, pawpaw                        |
| 5  | <i>Pinus echinata</i> Mill., shortleaf pine                     | 24 | <i>Baccharis halimifolia</i> L., eastern baccharis               |
| 6  | <i>Pinus elliottii</i> Engelm., slash pine                      | 25 | <i>Betula nigra</i> L., river birch                              |
| 7  | <i>Pinus glabra</i> Walt., spruce pine                          | 26 | <i>Bumelia lanuginosa</i> (Michx.) Pers., gum bumelia            |
| 8  | <i>Pinus palustris</i> Mill., longleaf pine                     | 27 | <i>Bumelia lycioides</i> (L.) Pers., buckthorn bumelia           |
| 9  | <i>Pinus serotina</i> Michx., pond pine                         | 28 | <i>Bumelia tenax</i> (L.) Willd., tough bumelia                  |
| 10 | <i>Pinus taeda</i> L., loblolly pine                            | 29 | <i>Carpinus caroliniana</i> Walt., American hornbeam             |
| 11 | <i>Taxodium distichum</i> (L.) Rich., baldcypress               | 30 | <i>Carya aquatica</i> (Michx. f.) Nutt., water hickory           |
| 12 | <i>Taxus floridana</i> Nutt., Florida yew                       | 31 | <i>Carya cordiformis</i> (Wangenh.) K. Koch, bitternut hickory   |
| 13 | <i>Torreya taxifolia</i> Arn., Florida torreya                  | 32 | <i>Carya floridana</i> Sarg., scrub hickory                      |
|    |   | 33 | <i>Carya glabra</i> (Mill.) Sweet, pignut hickory                |
|    |   | 34 | <i>Carya pallida</i> (Ashe) Engl. & Graebn., sand hickory        |
|    |   | 35 | <i>Carya tomentosa</i> Nutt., mockernut hickory                  |
|    |   | 36 | <i>Castanea alnifolia</i> Nutt., Florida chinkapin               |
|    |   | 37 | <i>Castanea dentata</i> (Marsh.) Borkh., American chestnut       |
|    |   | 38 | <i>Castanea pumila</i> Mill., Allegheny chinkapin                |
|    |   | 39 | <i>Catalpa bignonioides</i> Walt., southern catalpa              |
|    |   | 40 | <i>Celtis laevigata</i> Willd., sugarberry                       |
|    |   | 41 | <i>Celtis tenuifolia</i> Nutt., Georgia hackberry                |
|    |   | 42 | <i>Cephalanthus occidentalis</i> L., buttonbush                  |
|    |   | 43 | <i>Cercis canadensis</i> L., eastern redbud                      |
|    |   | 44 | <i>Chionanthus virginicus</i> L., fringetree                     |

#### Temperate Hardwoods

Map No.

- |    |  |
|----|--|
| 14 | <i>Acer barbatum</i> Michx., Florida maple |
| 15 | <i>Acer leucoderme</i> Small, chalk maple  |
| 16 | <i>Acer negundo</i> L., boxelder           |
| 17 | <i>Acer rubrum</i> L., red maple           |
| 18 | <i>Acer saccharinum</i> L., silver maple   |
| 19 | <i>Aesculus pavia</i> L., red buckeye      |



- 45 *Cliftonia monophylla* (Lam.) Britton, buckwheat-tree  
46 *Cornus alternifolia* L. f., alternate-leaf dogwood  
47 *Cornus florida* L., flowering dogwood  
48 *Cyrilla racemiflora* L., swamp cyrilla  
49 *Diospyros virginiana* L., common persimmon  
50 *Erythrina herbacea* L., southeastern coralbean  
51 *Fagus grandifolia* Ehrh., American beech  
52 *Forestiera acuminata* (Michx.) Poir., swamp-privet  
53 *Forestiera segregata* (Jacq.) Krug & Urban, Florida-privet  
54 *Fraxinus americana* L., white ash  
55 *Fraxinus caroliniana* Mill., Carolina ash  
56 *Fraxinus pennsylvanica* Marsh., green ash  
57 *Fraxinus profunda* (Bush) Bush, pumpkin ash  
58 *Gleditsia aquatica* Marsh., waterlocust  
59 *Gleditsia triacanthos* L., honeylocust  
60 *Gordonia lasianthus* (L.) Ellis, loblolly-bay  
61 *Halesia carolina* L., Carolina silverbell  
62 *Halesia diptera* Ellis, two-wing silverbell  
63 *Halesia parviflora* Michx., little silverbell  
64 *Hamamelis virginiana* L., witch-hazel  
65 *Ilex ambigua* (Michx.) Torr., Carolina holly  
66 *Ilex cassine* L., dahoon  
67 *Ilex coriacea* (Pursh) Chapm., large gallberry  
68 *Ilex decidua* Walt., possumhaw  
69 *Ilex montana* Torr. & Gray, mountain winterberry  
70 *Ilex myrtifolia* Walt., myrtle dahoon  
71 *Ilex opaca* Ait., American holly  
72 *Ilex verticillata* (L.) A. Gray, common winterberry  
73 *Ilex vomitoria* Ait., yaupon  
74 *Illicium floridanum* Ellis, Florida anise-tree  
75 *Illicium parviflorum* Michx., yellow anise-tree  
76 *Juglans nigra* L., black walnut  
77 *Kalmia latifolia* L., mountain-laurel  
78 *Leitneria floridana* Chapm., corkwood  
79 *Liquidambar styraciflua* L., sweetgum  
80 *Liriodendron tulipifera* L., yellow-poplar  
81 *Lyonia ferruginea* Nutt., tree lyonia  
82 *Magnolia acuminata* L., cucumbertree  
83 *Magnolia ashei* Weatherby, Ashe magnolia  
84 *Magnolia grandiflora* L., southern magnolia  
85 *Magnolia pyramidata* Bartr., pyramid magnolia  
86 *Magnolia virginiana* L., sweetbay  
87 *Malus angustifolia* (Ait.) Michx., southern crab apple  
88 *Morus rubra* L., red mulberry  
89 *Myrica cerifera* L., southern bayberry  
90 *Myrica heterophylla* Raf., evergreen bayberry  
91 *Myrica inodora* Bartr., odorless bayberry  
92 *Nyssa aquatica* L., water tupelo  
93 *Nyssa ogeche* Bartr., Ogeechee tupelo  
94 *Nyssa sylvatica* Marsh., black tupelo; blackgum  
95 *Osmanthus americanus* (L.) Benth. & Hook. f., devilwood  
96 *Ostrya virginiana* (Mill.) K. Koch, eastern hophornbeam  
97 *Oxydendrum arboreum* (L.) DC., sourwood  
98 *Persea borbonia* (L.) Spreng., redbay  
99 *Pinckneya pubens* Michx., pinckneya  
100 *Planera aquatica* Gmel., planertree  
101 *Platanus occidentalis* L., sycamore  
102 *Populus deltoides* Bartr., eastern cottonwood  
103 *Populus heterophylla* L., swamp cottonwood  
104 *Prunus americana* Marsh., American plum  
105 *Prunus angustifolia* Marsh., Chickasaw plum  
106 *Prunus caroliniana* (Mill.) Ait., Carolina laurelcherry  
107 *Prunus serotina* Ehrh., black cherry  
108 *Prunus umbellata* Ell., flatwoods plum  
109 *Ptelea trifoliata* L., common hoptree  
110 *Quercus alba* L., white oak  
111 *Quercus arkansana* Sarg., Arkansas oak  
112 *Quercus chapmanii* Sarg., Chapman oak  
113 *Quercus durandii* Buckl., Durand oak  
114 *Quercus falcata* Michx., southern red oak  
115 *Quercus incana* Bartr., bluejack oak  
116 *Quercus laevis* Walt., turkey oak  
117 *Quercus laurifolia* Michx., laurel oak  
118 *Quercus lyrata* Walt., overcup oak  
119 *Quercus marilandica* Muenchh., blackjack oak  
120 *Quercus michauxii* Nutt., swamp chestnut oak  
121 *Quercus myrtifolia* Willd., myrtle oak  
122 *Quercus nigra* L., water oak  
123 *Quercus phellos* L., willow oak  
124 *Quercus muehlenbergii* Engelm., chinquapin oak  
125 *Quercus shumardii* Buckl., Shumard oak  
126 *Quercus stellata* Wangenh., post oak  
127 *Quercus velutina* Lam., black oak  
128 *Quercus virginiana* Mill., live oak  
129 *Rhamnus caroliniana* Walt., Carolina buckthorn  
130 *Rhus copallina* L., shining sumac  
131 *Rhus glabra* L., smooth sumac  
132 *Sabal minor* (Jacq.) Pers., dwarf palmetto  
133 *Sabal palmetto* (Walt.) Lodd., cabbage palmetto  
134 *Salix caroliniana* Michx., Coastal Plain willow  
135 *Salix floridana* Chapm., Florida willow  
136 *Salix nigra* Marsh., black willow  
137 *Sambucus canadensis* L., American elder  
138 *Sassafras albidum* (Nutt.) Nees, sassafras  
139 *Serenoa repens* (Bartr.) Small, saw-palmetto  
140 *Staphylea trifolia* L., American bladdernut  
141 *Stewartia malacodendron* L., Virginia stewartia  
142 *Styrax americana* Lam., American snowbell  
143 *Styrax grandifolia* Ait., bigleaf snowbell  
144 *Symplocos tinctoria* (L.) L'Hér., common sweetleaf  
145 *Tilia caroliniana* Mill., Carolina basswood  
146 *Tilia heterophylla* Vent., white basswood  
147 *Toxicodendron vernix* (L.) Kuntze, poison-sumac  
148 *Ulmus alata* Michx., winged elm  
149 *Ulmus americana* L., American elm  
150 *Ulmus crassifolia* Nutt., cedar elm  
151 *Ulmus rubra* Mühl., slippery elm  
152 *Vaccinium arboreum* Marsh., tree sparkleberry  
153 *Viburnum nudum* L., possumhaw viburnum  
154 *Viburnum obovatum* Walt., Walter viburnum  
155 *Viburnum rufidulum* Raf., rusty blackhaw  
156 *Yucca aloifolia* L., aloe yucca  
157 *Yucca gloriosa* L., moundlily yucca  
158 *Zanthoxylum clava-herculis* L., Hercules-club  
158.1 *Ilex amelanchar* M. A. Curt., sarvis holly  
158.2 *Ilex longipes* Chapm., Georgia holly  
158.3 *Euonymus atropurpureus* Jacq., eastern burningbush  
158.4 *Magnolia tripetala* L., umbrella magnolia  
158.5 *Asimina parviflora* (Michx.) Dunal, smallflower pawpaw  
158.6 *Cornus stricta* Lam., swamp dogwood

## Tropical Hardwoods

Map No.

- |     |  |     |   |
|-----|--|-----|---|
| 159 | <i>Acacia choriophylla</i> Benth., cinnecord                                 | 208 | <i>Guapira discolor</i> (Spreng.) Little, blolly                          |
| 160 | <i>Acacia macracantha</i> Humb. & Bonpl. ex Willd., long-spine acacia        | 209 | <i>Guettarda elliptica</i> Sw., elliptic-leaf velvetseed                  |
| 161 | <i>Acoelorrhaphe wrightii</i> (Griseb. & H. Wendl.) H. Wendl., paurotis-palm | 210 | <i>Guettarda scabra</i> (L.) Vent., roughleaf velvetseed                  |
| 162 | <i>Alvaradoa amorphoides</i> Liebm., Mexican alvaradoa                       | 211 | <i>Gyminda latifolia</i> (Sw.) Urban falsebox                             |
| 163 | <i>Amphitecna latifolia</i> (Mill.) A. H. Gentry, black-calabash             | 212 | <i>Gymnanthes lucida</i> Sw., oysterwood                                  |
| 164 | <i>Amyris balsamifera</i> L., balsam torchwood                               | 213 | <i>Hamelia patens</i> Jacq., scarletbush                                  |
| 165 | <i>Amyris elemifera</i> L., torchwood  | 214 | <i>Hippomane mancinella</i> L., manchineel                                |
| 166 | <i>Annona glabra</i> L., pond-apple  | 215 | <i>Hypelate trifoliata</i> Sw., hypelate                                  |
| 167 | <i>Ardisia escallonioides</i> Schiede & Deppe, marlberry                     | 216 | <i>Ilex krugiana</i> Loes., tawnyberry holly                              |
| 168 | <i>Avicennia germinans</i> (L.) L., black-mangrove                           | 217 | <i>Jacquinia keyensis</i> Mez, joewood                                    |
| 169 | <i>Bourreria ovata</i> Miers, Bahama strongbark                              | 218 | <i>Krugiodendron ferreum</i> (Vahl) Urban, leadwood                       |
| 170 | <i>Bourreria radula</i> (Poir.) G. Don, rough strongbark                     | 219 | <i>Laguncularia racemosa</i> (L.) Gaertn. f., white-mangrove              |
| 171 | <i>Bumelia celastrina</i> H.B.K., saffron-plum                               | 220 | <i>Licaria triandra</i> (Sw.) Kosterm., Florida licaria                   |
| 172 | <i>Bursera simaruba</i> (L.) Sarg., gumbo-limbo                              | 221 | <i>Lysiloma latisiliquum</i> (L.) Benth., Bahama lysiloma                 |
| 173 | <i>Byrsonima lucida</i> DC., key byrsonima                                   | 222 | <i>Manilkara bahamensis</i> (Baker) Lam & Meeuse, wild-dilly              |
| 174 | <i>Calyptranthes pallens</i> Griseb., pale lidflower                         | 223 | <i>Mastichodendron foetidissimum</i> (Jacq.) Cronq., false-mastic         |
| 175 | <i>Calyptranthes zuzygium</i> (L.) Sw., myrtle-of-the-river                  | 224 | <i>Maytenus phyllanthoides</i> Benth., Florida mayten                     |
| 176 | <i>Canella winterana</i> (L.) Gaertn., canella                               | 225 | <i>Metopium toxiferum</i> (L.) Krug & Urban, Florida poison-tree          |
| 177 | <i>Capparis cynophallophora</i> L., Jamaica caper                            | 226 | <i>Myrcianthes fragrans</i> (Sw.) McVaugh, twinberry stopper              |
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| 182 | <i>Citharexylum fruticosum</i> L., Florida fiddlewood                        | 231 | <i>Pithecellobium guadalupense</i> (Pers.) Chapm., Guadeloupe blackbead   |
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| 185 | <i>Coccoloba wifera</i> (L.) L., seagrape                                    | 234 | <i>Pseudophoenix sargentii</i> H. Wendl. ex Sarg., buccaneer-palm         |
| 186 | <i>Coccothrinax argentata</i> (Jacq.) Bailey, Florida silverpalm             | 235 | <i>Psidium longipes</i> (Berg) McVaugh, long-stalk stopper                |
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| 188 | <i>Colubrina cubensis</i> (Jacq.) Brongn., Cuba colubrina                    | 237 | <i>Reynosa septentrionalis</i> Urban, darling-plum                        |
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| 190 | <i>Conocarpus erectus</i> L., button-mangrove                                | 239 | <i>Roystonea elata</i> (Bartr.) F. Harper, Florida royalpalm              |
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| 193 | <i>Cupania glabra</i> Sw., Florida cupania                                   | 242 | <i>Schaefferia frutescens</i> Jacq., Florida-boxwood                      |
| 194 | <i>Dipholis salicifolia</i> (L.) A. DC., willow bustic                       | 243 | <i>Schoepfia chrysophylloides</i> (A. Rich.) Planch., graytwig            |
| 195 | <i>Dodonaea viscosa</i> (L.) Jacq., hopbush                                  | 244 | <i>Simarouba glauca</i> DC., paradise-tree                                |
| 196 | <i>Drypetes diversifolia</i> Krug & Urban, milkbark                          | 245 | <i>Solanum erianthum</i> D. Don, mullein nightshade                       |
| 197 | <i>Drypetes lateriflora</i> (Sw.) Krug & Urban, Guiana-plum                  | 246 | <i>Suriana maritima</i> L., baycedar                                      |
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| 202 | <i>Exostema caribaeum</i> (Jacq.) Roem. & Schult., princewood                | 251 | <i>Trema lamarckiana</i> (Roem. & Schult.) Blume, West Indies trema       |
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# ATLAS OF UNITED STATES TREES

## VOLUME 5. FLORIDA

### INTRODUCTION

This is the fifth volume of an Atlas with large maps showing the natural distribution or range of the native tree species of the continental United States. In these five volumes, maps of nearly all native tree species of the continental United States have been published. The sixth, a supplement, will contain an index and small maps of the remaining genus of hawthorns (*Crataegus*).

Florida merits a separate volume because it has more native tree species than any other State (except Hawaii), and because it has a large number of tropical species found in no other State. These trees of mostly limited range can be shown better on large-scale maps. "Atlas of United States Trees, Volume 1, Conifers and Important Hardwoods" (Little 1971<sup>1</sup>) has an introduction to the series, which may be condensed and adapted here.

Maps demonstrate clearly, graphically, and better than written summaries where the trees grow wild and have many obvious uses. Assembled in atlas form for ready reference, these distribution maps are available to foresters, botanists, and all others interested in trees for use without restriction, since U.S. Government publications are not copyrighted.

The native tree species are not distributed across the United States at random, nor are they dispersed equally by States. Some tend to occur, however, in similar patterns related to climate and other factors. All volumes except the first are limited and arranged geographically.

Contents of Volumes 1-4 are indicated by their titles. However, distribution of Florida trees merits an explanation. Volume 1 contains maps of 201 native tree species—all the native conifers or softwoods (including the needleleaf and cone-bearing evergreens) and the important hardwoods. Coverage is partly botanical and partly practical. Nearly all trees now important commercially for lumber are represented. Sixty-eight species—all 13 native conifers of Florida—and 55 species of hardwoods—are mapped.

Florida is outside the geographical coverage of "Volume 2, Alaska Trees and Common Shrubs" (Viereck and Little 1975), and "Volume 3, Minor Western Hardwoods" (Little 1976).

"Volume 4, Minor Eastern Hardwoods" (Little 1977) contains maps of 166 tree species native in the eastern contiguous United States not in Volume 1. For Florida, 91 species are mapped, but the tropical trees confined to South Florida are omitted. Also, the genus of hawthorns (*Crataegus*) has been left out because of taxonomic difficulties.

"Volume 5, Florida" has maps of 262 species on 126 pages, all

the native hardwoods except the genus of hawthorns (*Crataegus*). There are large maps for 98 species of tropical hardwoods confined mostly to the southern part (6 also in other States). This volume repeats the Florida portions (a few slightly revised) of 170 species from Volumes 1, 3, and 4 (mostly 6 to a page). Thus, all maps for this State have been assembled together. However, Volumes 1 and 4 will be useful to show the entire distribution of the same species in other States or beyond.

"Volume 6, Supplement" will have an index to all maps and also maps of hawthorns (*Crataegus*). Occurrence merely by States will be shown for 35 species (10 in Florida). Text ranges omitted from Volumes 1 and 3 will be added.

The native tropical trees of Hawaii and the Commonwealth of Puerto Rico are best treated separately. Maps of 100 species in Puerto Rico based on a forest survey were published in "Common Trees of Puerto Rico and the Virgin Islands" (Little and Wadsworth 1964).

### HISTORY OF TREE DISTRIBUTION MAPS

The history of tree distribution maps in the United States has been reported in Volume 1, while early work by the Forest Service has been reviewed by Little (1951). George B. Sudworth, first dendrologist, began work with the Division (later Bureau) of Forestry in 1886. Tree ranges were summarized in the two editions of his "Check List of Forest Trees of the United States, Their Names and Ranges" (Sudworth 1898, 1927).

Soon after establishment of the Forest Service in the United States Department of Agriculture in 1905, Sudworth undertook a project of preparing a distribution map for each native tree species of North America, exclusive of those occurring wholly in Mexico and minor tropical trees of southern Florida. Publication of these maps was begun under the title, "Forest Atlas—Geographic Distribution of North American Trees." Only "Part I—Pines" (Sudworth 1913) ever appeared.

Some years later, Munns (1938) published distribution maps of 170 important forest tree species of the United States. With minor additions, the maps were based very largely upon data by Sudworth, who died in 1927.

Besides "Volume 2, Alaska Trees and Common Shrubs," other Forest Service publications have been devoted to maps of the trees of a single State. In 1941-50, the Forest Survey published distribution maps of commercial forest trees in four Southeastern States: Mississippi, North Carolina, South Carolina, and Virginia. "The Distribution of Forest Trees in California," by James R. Griffin and William B. Critchfield (1972), has detailed maps of 86 species of that State.

<sup>1</sup> Names and dates in parentheses refer to Selected References, p. 20.

## COVERAGE OF THIS VOLUME

"Atlas of United States Trees, Volume 5, Florida" continues the presentation of Florida species reported in Volumes 1 and 4. The Forest Service "Check List of Native and Naturalized Trees of the United States" (Little 1953) serves as a basis for the species included as trees, their accepted scientific names, and their approved common names. That reference contains other common names in use (Index of Common Names, p. 451-472) and current synonyms of the scientific names. Thus, names of species not found in this volume may be traced and correlated. "Tree Names" (page 4) contains several minor changes in nomenclature to be incorporated in the forthcoming revision of the Check List.

The Check List apparently is the only current compilation of the native woody-plant species that reach tree size and that should be mapped in this Atlas. Obviously, the number of tree species included here depends somewhat upon the definition used. That of the Check List (Little 1953, p. 5) is followed and repeated below, with insertion of approximate metric equivalents (and slight increase in height to agree): Trees are defined as woody plants having one erect perennial stem or trunk at least 3 inches (7.5 centimeters) in diameter at breast height (4.5 feet or 1.3 meters), a more or less definitely formed crown of foliage, and a height of at least 13 feet (4 meters).

Species whose individuals sometimes reach the above dimensions somewhere within their natural range in the continental United States have been included in this Atlas as well as in the Check List. Some shrubby species attain tree size southward. Their inclusion has increased the scope of this reference and number of maps.

The trees of this volume are classed as gymnosperms, composed of plants with naked seeds and without true flowers, and angiosperms, or flowering plants. Conifers or cone-bearing plants, known also as softwoods, include the needleleaf evergreens and belong to the gymnosperms.

Most of Florida's tree species of angiosperms are hardwoods. They are classed as dicotyledons, flowering plants with trunks of bark and wood, usually hard, which increases in thickness by annual growth rings. Also included in this volume are monocotyledons, flowering plants whose trunks are not divided into bark and wood and whose less compact woody tissue does not increase in thickness by growth rings. Examples are 2 species of yucca, *Yucca*, and 9 of palms.

The native trees of Florida (excluding hawthorn, *Crataegus*) mapped in this volume total 262 species in 147 genera and 63 plant families. They may be grouped further into conifers, 13 species in 5 genera and 4 families; monocotyledons, 11 species in 8 genera and 2 families; and dicotyledons, 238 species in 134 genera and 57 families. A botanical index of genera and families appeared in the Check List (Little 1953, p. 445-450).

The 10 Florida species of hawthorn (*Crataegus*) listed below increase the State total to about 272 tree species. (However, Kurz and Godfrey (1962) described and illustrated 18 species of *Crataegus* in northern Florida.)

- Crataegus aestivalis* (Walt.) Torr. & Gray, May hawthorn
- Crataegus crus-galli* L., cockspur hawthorn
- Crataegus flava* Ait., yellow hawthorn
- Crataegus lacrimata* Small, Pensacola hawthorn
- Crataegus marshallii* Eggl., parsley hawthorn
- Crataegus phaenopyrum* (L. f.) Medic., Washington hawthorn
- Crataegus pulcherrima* Ashe, beautiful hawthorn
- Crataegus spathulata* Michx., littlehip hawthorn

*Crataegus uniflora* Muenchh., one-flower hawthorn

*Crataegus viridis* L., green hawthorn

The richness of the tropical flora of South Florida is shown by the 98 tropical species with large maps. They are distributed among 75 genera and 38 plant families. These totals add 71 mostly tropical genera and 24 families to the Florida trees mapped in previous volumes.

Largest genera of Florida trees, as summarized in Volume 5, are: oak (*Quercus*), 19 species; holly (*Ilex*), 12; hawthorn (*Crataegus*), 10; pine (*Pinus*), 7; hickory (*Carya*), magnolia (*Magnolia*), and cherry—plum (*Prunus*), 6 each; and maple (*Acer*), 5.

Several tropical species common in South Florida are omitted because they are naturalized, rather than native. Examples are: *Cocos nucifera* L., coconut; *Melaleuca quinquenervia* (Cav.) S. T. Blake, cajuput-tree; and *Psidium guajava* L., guava.

Florida possesses more species of native trees than any other State of the continental United States. Texas, where subtropical plants also grow, is second with about 220 tree species (also about 15 of hawthorn, *Crataegus*). However, Hawaii, the 50th State, has more than 300 species of native tropical trees (about 370 have been named). Approximately 540 are found in the Commonwealth of Puerto Rico.

## PREPARATION OF THE MAPS

The maps in this volume have been compiled from various sources, following the procedure explained in the first volume. Principal records on tree distribution include publications, herbarium specimens, field work, and review by local specialists.

The more detailed publications with information about tree distribution in Florida are listed under Selected References (p. 20). Examples are tree guides, floras, manuals, and taxonomic monographs, some with maps. The classic Manual by Sargent (1926) contains important locality records.

Though more than one-fourth of the States now have publications with distribution maps of all or most native tree species, Florida has not been so covered previously. Ward (1963) has begun a series of contributions to the flora of Florida with species maps of distribution by counties, the first on the genus *Pinus*.

John Kunkel Small (1869-1938) prepared many publications with distribution notes based upon his extensive field work in Florida, especially the southern part with its tropical flora. He wrote handbooks of Florida trees and shrubs (Small 1913c, 1913d, 1917), local floras of the Florida Keys and Miami (Small 1913a, 1913b), and manuals of the flora of the Southeastern United States (Small 1903, 1933).

The current reference on the native trees of Florida is by West and Arnold (1956), first issued in 1946. Kurz and Godfrey (1962) described the trees of northern Florida, and Craighead (1971) issued the first volume of his work on the trees of South Florida. Stevenson (1969) prepared a concise guide to the trees of Everglades National Park and the Florida Keys, with small general maps. Earlier, Buswell (1945, 1946) wrote bulletins on the native trees and shrubs of South Florida. The descriptive manual of the seed plants of southern peninsular Florida by Long and Lakela (1971) contains brief notes on ranges.

Additional distribution records have been contributed by local floras, for example, the Tampa Bay area by Lakela et al. (1976), Alachua County by Murrill (1937, 1939), and the three southern-

most counties by Lakela and Craighead (1965). Islands with published plant lists include the Sand Keys (Millsbaugh 1907), Key West (Melvill 1884), Big Pine Key and surrounding keys (Dickson, Woodbury, and Taylor 1953), Sanibel Island (Cooley 1955), and St. Vincent Island (McAtee 1913).

One of the most detailed sources of information for tree distribution in southern peninsular Florida is the recent report by Alexander and Crook (1975). Their South Florida ecological study financed by the National Park Service contains plant lists of 100 quadrats, each 1 square mile in area, dispersed through 8 counties from Lake Okeechobee southward.

Herbarium specimens have been an important source for the preparation of the Florida maps, as for other volumes. The compiler twice visited four large university herbaria within the State to copy locality records from unpublished maps and specimen labels. These are the University of Florida at Gainesville, Florida State University at Tallahassee, University of South Florida at Tampa, and University of Miami at Coral Gables. For the published flora the detailed maps at the University of South Florida based upon large collections in the southern part of the State were very helpful. Credit is due all curators for the privilege of consulting the herbaria and for their cooperation in supplying these records.

Maps of vegetation, forest types, topography, and landforms have been very useful in location of lines along borders of ranges. In this Atlas volume, the main source of vegetation boundaries has been the vegetation map of Florida by Davis (1967). Other useful maps were Vegetation by A. W. Küchler, National Atlas Sheet No. 90 (U.S. Geological Survey 1970), and Forest Types, National Atlas Sheet No. 182, prepared by the Forest Service. The last was reduced and adapted slightly for inclusion in the first volume as overlay map 9, Major Forest Types. That overlay can be adapted also for the 164 species maps of the same scale in this Atlas volume.

These maps have been prepared through the years along with other work by the compiler and an assistant. The tropical species, not covered in early Forest Service maps, were added in 1962. Sources of most locality records were indicated on the working maps and could be traced if necessary. However, detailed record-keeping and reproduction of numerous dots on most maps (such as those made by computers) would have added greatly to the time and cost of preparation without increasing the accuracy and would have delayed publication. The compiler's field work in Florida began with studies of the trees of the Miami area in September 1950, the pines in January 1951, and the trees of Big Pine Key in September 1952.

For assistance in preparing and drafting maps, credit is due Barbara H. Honkala, research botanist, who also made the cover design. Many maps were drafted by Charles F. Tyson.

Valuable assistance, particularly in reviewing the preliminary maps, was contributed by many persons. Special acknowledgment is made to the following for their careful review of the large maps of tropical species: Taylor R. Alexander, Daniel F. Austin, George N. Avery, David W. Black, Frank C. Craighead, Sr., John Popenoe, William B. Robertson, Roy O. Woodbury, and Richard P. Wunderlin. Naturally the compiler is responsible for all errors.

## EXPLANATION OF THE MAPS

Species maps of Volume 5 follow the general plan of previous volumes, from which this explanation is adapted. Page size is  $9\frac{1}{4}$

by  $11\frac{3}{4}$  in., the same as in Volumes 2-4. However, species maps for the State of Florida are of two sizes and are arranged in three groups, each in alphabetical order by scientific name.

Maps Nos. 1-13 are of the 13 conifers, and Nos. 14-158.6 are of the 151 temperate hardwoods. Florida maps of these 164 species are reproduced from portions of maps in Volumes 1 and 4 on the same scale, 6 to a page.

The base map is the same for the contiguous United States, scale 1:10,000,000, Albers Conical Equal Area Projection—standard parallels  $29\frac{1}{2}^{\circ}$  and  $45\frac{1}{2}^{\circ}$ . Lines show State and county boundaries, and crosses at 5-degree intervals mark latitude and longitude. One inch equals approximately 158 miles and 1 centimeter, 100 kilometers. Naturally, this projection of Florida taken from the corner of the larger map differs slightly from that of the State alone.

As the scale is unchanged, these maps can be compared readily with those of previous volumes. Also, the 9 transparent overlays from Volume 1 can be adapted, as noted previously.

Maps Nos. 159-256, 1 to a page, are of the tropical hardwoods, mostly in South Florida. These 98 new maps are about 2.5 times as large, in order to show distribution in greater detail, for example, in the Florida Keys. The scale is roughly 1:4,000,000, about 63 miles to 1 in. (40 km to 1 cm).

Each species has only 1 map. Range outside of Florida is not mapped in this volume, though expressed in text. For the species charted previously, Volumes 1 and 4 show entire ranges on base maps of the United States and, as needed, of North America. However, occurrence of tropical trees outside the United States has not been plotted.

List of Maps (p. iv) cites the number and order of maps of the 262 tree species. Index of Common Names and Index of Scientific Names follow the maps.

The latest known range of each species is summarized also in text under Species Maps and Ranges (p. 6). Both the distribution within Florida and the entire natural range are cited. Forest Service Check Lists contain summaries of range also.

The natural distribution or range of a tree species, as mapped in this Atlas, is the geographical area where the species, including any and all varieties, is native or wild. Varieties have not been plotted separately, and hybrids are omitted.

The distribution of the native tree species of the United States is mapped as of the present time, exclusive of changes caused directly or indirectly by Europeans. However, where modifications have occurred, the distribution is intended to be before Columbus, or pre-Columbian. In Florida some tree species with useful products may have been spread by American Indians.

These maps do not show where a species grows outside the natural range after having been introduced directly or indirectly by mankind, whether planted, escaped, adventive, or naturalized. Records of planted or introduced trees outside the continuous natural ranges have not knowingly been mapped. Reports of trees planted for forestry, shade, or other purposes and of escapes from cultivation have been omitted. Also excluded are naturalized trees, those introduced outside their natural range and thoroughly established and reproducing as though native.

Perhaps in the future, maps adding forest plantations or other successful introductions beyond the original occurrence may merit compilation. In the meantime, maps of Plant Hardiness Zones may suggest roughly where a species would be hardy when planted outside its natural range. General Map No. 6 serves for Florida. The

map for the contiguous United States (U.S. National Arboretum 1965) was reproduced as overlay 4 of Volume 1.

Natural geographic distribution of each species is shown as a brown-shaded pattern of fine dots on the black-and-white base map. Outlying stations or outliers are shown similarly by large or small dots according to size. However, the smallest areas, such as a grove with only a few trees, must be enlarged to a dot, representing several miles in diameter, to be visible on a map. Width of strips, such as along coasts, has been broadened slightly. A few localities beyond the main range, where a species is known to have occurred naturally within historic times but is now extinct, are designated by X. Arrows have been added to direct attention to isolated dots.

Presence or absence is shown, but not abundance or density. Commercial range, formerly indicated on some old maps, is not designated.

The species maps do not indicate forest types, or forest cover types, which are shown in overlay 9, Major Forest Types, in Volume 1. Most tree species are not confined to a single forest type and have ranges somewhat beyond. However, many species are characteristic of and largely within certain broad types. The comprehensive classification of forest cover types prepared by the Society of American Foresters (1954) lists species but lacks maps.

A few tree species have spread widely by planting or other introductions and have become so thoroughly naturalized that the limits of their original ranges are in doubt. Examples in South Florida are *Solanum erianthum*, mullein nightshade, and *Cordia sebestena*, Geiger-tree.

## TREE NAMES

Scientific and common names follow the Forest Service Check List (Little 1953), except for minor revision of nomenclature. Differences in scientific names, including a few additions and deletions, are given below, the accepted name cited first.

The first 11 changes below are repeated from Volume 4, because ranges in Florida are affected. The first 2 involve the substitution of an older specific name. The third is an addition of a shrub reaching tree size.

*Avicennia germinans* (L.) L., black-mangrove, replaces *A. nitida* Jacq.

*Sabal minor* (Jacq.) Pers., dwarf palmetto, formerly omitted as a shrub, includes *S. louisiana* (Darby) Bomhard, Louisiana palmetto, a name applied to plants with trunks.

*Styrax americana* Lam., American snowbell, becomes a small tree.

The next 7 names involve omission or deletion, mostly through union of 2 species. The second of 2 species, both accepted in the 1953 Check List, has been united and reduced to a synonym or variety of the first.

*Cyrilla racemiflora* L., swamp cyrilla, has as varieties or synonyms *C. parvifolia* Raf., littleleaf cyrilla, and *C. arida* Small, Florida cyrilla.

*Osmanthus americanus* (L.) Benth. & Hook. f., devilwood, has as a variety *O. americanus* var. *megacarpus* (Small) P. S. Green (*O. megacarpus* (Small) Small), bigfruit osmanthus, of Florida.

*Persea borbonia* (L.) Spreng., redbay, includes as a variety *P. bordonia* var. *humilis* (Nash) Kopp (*P. humilis* Nash), silkbay, and as a synonym *P. littoralis* Small, shorebay, both of Florida.

*Quercus prinoides* Willd., dwarf chinkapin oak, which also has been united to include as a variety *Q. muehlenbergii* Engelm.,

chinkapin oak, is omitted here as a clump-forming shrub, usually low but rarely tree-like.

*Sambucus canadensis* L., American elder, includes *S. simpsonii* Rehd., Florida elder.

*Sapindus saponaria* L., wingleaf soapberry, Florida including Florida Keys and southeastern Georgia, apparently introduced northward, has as a synonym *S. marginatus* Willd., Florida soapberry.

*Tilia caroliniana* Mill., Carolina basswood, includes as a synonym *T. floridana* Small, Florida basswood.

The remaining changes below concern Florida trees mostly not represented in previous volumes of the Atlas. Two additional species of *Acacia* have been discovered on the Florida Keys, where they are very rare. Eighteen other changes involve adoption of older names or segregates and union of names as varieties or synonyms.

*Acacia choriophylla* Benth., cinnecord, is added as a very rare native tree. One tree found in 1967 on northern Key Largo (Alexander 1968) may have been destroyed by a fire in 1975. Another was located in 1977.

*Acacia macracantha* Humb. & Bonpl. ex Willd., long-spine acacia, is added as a native tree. Fifteen plants, apparently native, were found on Ramrod Key (near Big Pine Key) in 1963 (Ward 1967). Very rare and also in cultivation as an ornamental and apparently persistent and escaping.

*Acoelorrhaphe wrightii* (Griseb. & H. Wendl.) H. Wendl., paurotis or paurotis-palm, replaces *Paurotis wrightii* (Griseb. & H. Wendl.) Britton.

*Amphitecna latifolia* (Mill.) A. H. Gentry, black-calabash, replaces *Enallagma latifolia* (Mill.) Small.

*Bourreria radula* (Poir.) G. Don, rough strongbark replaces *B. revoluta* H.B.K.

*Cereus robinii* (Lem.) L. Benson, key tree-cactus, with 2 varieties replaces 2 species of *Cephalocereus*. Var. *robinii*, key tree-cactus (typical), of Lower Florida Keys, replaces *Cephalocereus keyensis* Britton. Var. *deeringii* (Small) L. Benson, Deering tree-cactus, of Upper Florida Keys, replaces *Cephalocereus deeringii* Small.

*Colubrina elliptica* (Sw.) Briz. & Stern, soldierwood, of Upper Florida Keys, replaces *C. reclinata* (L'Hér.) Brongn.

*Dodonaea viscosa* (L.) Jacq., hopbush, of Florida including Lower Florida Keys, also southern Arizona, has *D. microcarpa* Small as a synonym of a variety.

*Eugenia foetida* Pers., boxleaf stopper, replaces *E. myrtoides* Poir., as well as *E. buxifolia* (Sw.) Willd., a later homonym. A synonym is *E. anthera* Small, Smalls eugenia.

*Ficus citrifolia* Mill., shortleaf fig, is an older name for *F. laevigata* Vahl.

*Guapira discolor* (Spreng.) Little, longleaf blolly, includes as synonyms these variations based upon leaf shape and size: *Torrubia bracei* Britton, *T. globosa* Small, and *T. longifolia* (Heimerl) Britton.

*Lysiloma latisiliquum* (L.) Benth., Bahama lysiloma, replaces *L. bahamense* Benth.

*Manilkara bahamensis* (Baker) Lam & Meeuse, wild-dilly, replaces *Achras emarginata* (L.) Little.

*Mastichodendron foetidissimum* (Jacq.) Cronq., false-mastic, replaces *Sideroxylon foetidissimum* Jacq.

*Myrcianthes fragrans* (Sw.) McVaugh, twinberry stopper, replaces *Eugenia dicrana* Berg and has as a variety *M. fragrans* var. *simpsonii* (Small) R. W. Long, Simpson stopper (*Anamomis simpsonii* Small, *Eugenia simpsonii* (Small) Sarg., and *Myrcianthes simpsonii* (Small) K. A. Wilson).

*Psidium longipes* (Berg) McVaugh, long-stalk stopper, replaces *Eugenia longipes* Berg and *E. bahamensis* auth.

*Rapanea punctata* (Lam.) Lundell, Florida rapanea, replaces *R. guianensis* Aubl., which is a South American species.

*Solanum erianthum* D. Don, mullein nightshade or potato-tree, of southern Florida including Florida Keys and extreme southern Texas, naturalized northward, replaces *S. verbascifolium* Jacq., not L.

*Thrinax morrisii* H. Wendl., brittle thatchpalm or key thatchpalm, replaces or includes as a variety *T. microcarpa* Sarg.

*Thrinax radiata* Lodd. ex J. A. & J. H. Schult., Florida thatchpalm, replaces *T. floridana* Sarg. and *T. parviflora* auth.

The next 4 tree species formerly listed as native on the Florida Keys have been excluded (Little 1976b).

*Andira inermis* (W. Wright) DC., cabbage angelin, was found only once and possibly was an accidental migration.

*Bucida buceras* L., oxhorn bucida, was introduced, not native.

*Clusia flava* Jacq., was based upon misidentification of a sterile specimen.

*Crescentia cujete* L., common calabash-tree, was introduced, not native.

The last 3 species, accepted in the 1953 Check List, are omitted as shrubs only rarely reported to attain tree size in Florida.

*Gossypium hirsutum* L., upland cotton.

*Psychotria ligustrifolia* (Northrop) Millsp., Bahama balsamo.

*Psychotria nervosa* Sw. (*Ps. undata* Jacq.), Seminole balsamo.

## GENERAL MAPS

This volume contains 6 General Maps, following the plan of earlier ones.

**1. North America.** The general map of North America, from previous volumes, locates Florida with reference to other States. Also shown are other place names, including the Provinces and other subdivisions of Canada, States of Mexico, and names of additional countries. The scale is approximately 1:30,000,000, about 473 miles to 1 inch (300 km to 1 cm).

**2. West Indies.** Southern Florida is shown with reference to the principal islands including Puerto Rico and the Virgin Islands. Also indicated are adjacent countries of Central America and northern South America. Many of these place names are mentioned under ranges of the tropical species. This map (Little, Woodbury, and Wadsworth 1974, fig. 1) will serve as a reference in the absence of species maps with the entire distribution. The scale is approximately 1:11,000,000, about 175 miles to 1 inch (110 km to 1 cm), almost the same as in the following map of the Southeastern United States. Though slightly reduced, the islands and distances are comparable with the small maps of Florida.

**3. Southeastern United States (contiguous).** A base map showing names of counties—from the map of the contiguous United States in Volume 4, scale 1:10,000,000, about 158 miles to 1 inch (100 km to 1 cm).

**4. Florida.** This base map by the United States Geological Survey is used for the ranges of the 98 tropical tree species mostly in South Florida. The scale is approximately 1:4,000,000, about 63 miles to 1 inch (40 km to 1 cm). Lines show county boundaries, rivers, and lakes. Counties, county seats, and physical features are named. Latitude and longitude are indicated by lines.

**5. National Forests, Everglades National Park, and Biscayne National Monument.** Trees of many species are found within the publicly owned lands dedicated to the management or preservation of the renewable natural resources. Comparisons with a tree species map will indicate whether that species may be expected within the boundary.

The Forest Service, United States Department of Agriculture, administers the 3 National Forests in Florida with headquarters at Tallahassee. The Apalachicola (A) is located in the northwestern part near Tallahassee, the Osceola (B) in the northern part near Lake City, and the Ocala (C) in the north central part near Ocala.

The National Park Service, United States Department of the Interior, administers the Everglades National Park (D) at the southern end of Florida, with headquarters at Homestead, and the Biscayne National Monument (E) at the northern end of the Florida Keys.

Additional State Forests and State Parks, not shown, may be found on State highway maps. Four State Forests are under the State Division of Forestry. About 75 State Parks and Historic Memorials are administered by the Florida Department of Natural Resources, Division of Recreation and Parks. Trees are protected also in wildlife refuges and special sanctuaries.

**6. Plant Hardiness Zones.** This Florida map is from the Plant Hardiness Zone Map of the contiguous United States prepared by the National Arboretum (USDA Agricultural Research Service 1965). The cold hardiness zones are based upon average minimum winter temperatures, that is, the lowest temperature in each year. These zones indicate winter hardiness for certain ornamental plants but are equally useful for native trees. Of course, other factors are involved in adaptation and distribution.

Of the 10 hardiness zones, Florida has the 3 warmest, or 5 subdivisions, as shown on this map. From north to south and coldest to warmest, these 5 subzones are listed here, with average minimum winter temperatures in degrees Fahrenheit.

Zone 8b, the coldest climate, 15° F., in a few counties along the Alabama border in the northwestern part of the panhandle.

Zone 9a, 20° F., the northern part of the State except near the Atlantic Ocean.

Zone 9b, 25° F., the central part of the State, except near the coasts.

Zone 10a, 30° F., the southern part of the Florida mainland north beyond Lake Okeechobee to Cape Canaveral on the east coast and to Tampa Bay on the Gulf Coast.

Zone 10b, 35° F., the Florida Keys and southern end of mainland, north to Indian River County on the east coast and Collier County on west.

Zones 8b and 9a could be grouped with colder zones as having a warm temperate climate. Zones 9b and 10a could be classed as subtropical. Zone 10b could be considered tropical, though with freezing temperatures in infrequent years. However, the Florida Keys are the only areas of the State which never experience freezing temperatures and which are actually tropical.

## SPECIES MAPS AND RANGES

The natural distribution of each species of Florida trees within this State is shown on a map (Species Maps 1-256). Also the range, both within Florida and beyond, is summarized in text for reference. Ranges have been compiled from these maps for this volume and for the forthcoming revision of the Forest Service Check List.

The entire distribution is given in outline form, as in previous check lists. Most place names have been abbreviated. The States along the corners and irregular limits of distribution have been listed, generally from northeast to northwest, southwest, and southeast. However, ranges of species confined to the Coastal Plain of the Southeastern United States are cited from northeast to southeast and southwest. In many cases the Atlantic Ocean and Gulf of Mexico form natural boundaries on one side. Portions of States, especially large ones, along the corners and limits have been mentioned where the distribution within those States is not widespread.

Distribution is more or less continuous in a line connecting the States named. Isolated stations, which are shown on the maps, are not noted. Counties or other geographical divisions have been cited in a few instances, mostly trees of local or restricted occurrence.

Entire ranges of species occurring also outside the continental United States have not been given in detail. For the trees extending southward in Mexico the Mexican States forming the outlines have been cited where known. Likewise, presence is noted in West Indies and specifically Puerto Rico and the Virgin Islands, Central America, and South America.

Distribution within Florida is given in greater detail for the 98 species on large maps of the State and not ranging into other States. There follows the range beyond, which is not mapped. These mostly tropical species continue into the West Indies, and some also to the continent.

References to any maps of the same species in other Atlas volumes follow the statements of ranges. These maps in Volumes 1, 3, and 4 chart the distribution beyond Florida in the continental United States and North America.

1. *Chamaecyparis thyoides* (L.) B.S.P., Atlantic white-cedar. Coastal Plain from central Maine s. to n. Fla. and w. to s. Miss. Atlas vol. 1, map 11-E.

2. *Juniperus silicicola* (Small) Bailey, southern redcedar. Coastal Plain, chiefly near coast, from ne. N.C. s. to c. Fla. and w. to se. Tex. Atlas vol. 1, map 29-E.

3. *Juniperus virginiana* L., eastern redcedar. Widespread in e. half of U.S. from sw. Maine to n. N.Y., extreme s. Que., s. Ont., s. Mich., and s. Minn., e. S. Dak., and sw. N. Dak., s. to w. Nebr., nw. and c. Tex., and e. to n. Fla. and Ga. Atlas vol. 1, maps 31-W, 31-E.

4. *Pinus clausa* (Chapm.) Vasey, sand pine. Ne. to s. Fla. (Ocala race or var. *clausa*) and in nw. Fla. and extreme s. Ala. (Baldwin Co.; Choctawhatchee race or var. *immuginata* D. B. Ward). Atlas vol. 1, map 49-E.

5. *Pinus echinata* Mill., shortleaf pine. Extreme se. N.Y. and N.J. w. to Pa., s. Ohio, e. Ky., s. Ill., and s. Mo., s. to e. Okla. and e. Tex., and e. to n. Fla. and Ga. Atlas vol. 1, map 52-E.

6. *Pinus elliottii* Engelm., slash pine. Coastal Plain from s. S.C. to s. Fla. and w. to se. La. The broken line on map 6 separates the 2 varieties: Var. *elliottii*, slash pine (typical). Coastal Plain from s. S.C. to c. Fla. and w. to se. La. Var. *densa* Little & Dorman, South Florida slash pine. S. Fla. and n. along coasts to c. Fla.

Also 8 of Lower Fla. Keys (Big Pine, Little Pine, No Name, Middle Torch, Big Torch, Ramrod, Howe, Cudjoe) and extinct on Key Largo. Known only from Fla. Atlas vol. 1, map 54-E.

7. *Pinus glabra* Walt., spruce pine. Coastal Plain from e. S.C. to n. Fla. and w. to se. La. Atlas vol. 1, map 58-E.

8. *Pinus palustris* Mill., longleaf pine. Coastal Plain from se. Va. to c. Fla. and w. to e. Tex. Atlas vol. 1, map 65-E.

9. *Pinus serotina* Michx., pond pine. Coastal Plain from s. N.J. and Del. s. to c. and nw. Fla. and c. Ala. Atlas vol. 1, map 74-E.

10. *Pinus taeda* L., loblolly pine. Coastal Plain and Piedmont from s. N.J. and Del. s. to c. Fla. and w. to e. Tex., and n. in Miss. Valley to extreme se. Okla., c. Ark., and s. Tenn. Atlas vol. 1, map 75-E.

11. *Taxodium distichum* (L.) Rich., baldcypress. Coastal Plain from s. Del. to s. Fla., w. to e. and se. Tex., and n. in Miss. Valley to extreme se. Okla., se. Mo., s. Ill., sw. Ind., and w. Ky. Atlas vol. 1, map 84-E.

12. *Taxus floridana* Nutt., Florida yew. Nw. Fla. (Gadsden and Liberty Cos.). Very rare and local. Atlas vol. 1, map 85-E.

13. *Torreya taxifolia* Arn., Florida torreya. Extreme sw. Ga. (Decatur Co.) and nw. Fla. (Gadsden, Liberty, and Jackson Cos.). Very rare and local and threatened by a fungus disease. Atlas vol. 1, map 88-E.

14. *Acer barbatum* Michx., Florida maple. Coastal Plain and Piedmont from se. Va. sw. to c. Fla., w. to e. Tex., and n. in Miss. Valley to n. Ark. and e. Okla. Local in c. Okla. Atlas vol. 4, map 1.

15. *Acer leucoderme* Small, chalk maple. Rare and local from N.C. and e. Tenn. s. to nw. Fla. and w. to La., e. Tex., sw. Ark., and se. Okla. Atlas vol. 4, map 2.

16. *Acer negundo* L., boxelder. Very widespread through most of continental U.S. except New England and nw. N.J. and c. N.Y. w. to extreme s. Ont., c. Mich., n. Minn., c. Man., c. Sask., and s. Alta., s. to c. Mont., e. Wyo., Utah, and Calif., and e. to s. Tex. and c. Fla. Also local in N.H., Vt., Mass., Conn., Idaho, and Nev. Naturalized ne. to Maine, s. Que., N.B., N.S., and P.E.I. and in se. Wash. and e. Oreg. Also vars. in mts. of Mex. (N.L. and S.L.P. s. to Chis.) and Guatemala. Atlas vol. 1, maps 96-W, 96-E, 96-N.

17. *Acer rubrum* L., red maple. S. Nfld., N.S., and s. Que. w. to s. and sw. Ont., extreme se. Man., and n. Minn., s. to Wis., Ill., Mo., e. Okla., and e. Tex., and e. to s. Fla. Atlas vol. 1, maps 98-N, 98-E.

18. *Acer saccharinum* L., silver maple. N.B., Maine, and extreme s. Que. w. to se. Ont., n. Mich., and n. Minn., s. to se. N.D., e. Nebr., and e. Okla., and e. to Ark., La., nw. Fla., and c. Ga. Atlas vol. 1, map 101-E.

19. *Aesculus pavia* L., red buckeye. Coastal Plain from se. N.C. se. to n. Fla. and w. to e. and c. Tex. to Edwards Plateau, and n. in Miss. Valley to se. Okla., se. Mo., and s. Ill. Atlas vol. 4, map 6.

20. *Alnus serrulata* (Ait.) Willd., hazel alder. Sw. N.S., s. N.B., and c. Maine, w. to N.Y., Ohio, Ind., Mo., and extreme se. Kans., s. to e. Okla. and e. Tex., and e. to n. Fla. Atlas vol. 4, maps 10-NE, 10-SE, 10-N.

21. *Amelanchier arborea* (Michx. f.) Fern., downy serviceberry. S. Nfld., N.S., N.B., s. Que., and Maine, w. to s. Ont., n. Mich., and e. Minn., s. to extreme se. Nebr., e. Kans., e. Okla., and La., and e. to n. Fla. Atlas vol. 4, maps 11-N, 11-NE, 11-SE.

22. *Aralia spinosa* L., devils-walkingstick. N.J. and c. and w. N.Y., to s. Ohio, s. Ill., and se. Mo., s. to se. Okla. and e. Tex., and e. to c. Fla. Also escaping from cult. from s. New Engl. to Mich.



and naturalized locally in Conn. and perhaps elsewhere. Atlas vol. 4, map 15.

23. *Asimina triloba* (L.) Dunal, pawpaw. Pa. and w. N.Y., w. to extreme s. Ont., s. Mich., n. Ill., s. Iowa, and se. Nebr., s. to e. Kans. and e. Tex., and e. to s. La., nw. Fla., and Ga. Also extinct in N.J., sw. Wis., and ne. Iowa. Atlas vol 4, map 16.

24. *Baccharis halimifolia* L., eastern baccharis. Coastal Plain, generally near coast, from Mass. s. to s. Fla. incl. Fla. Keys, w. to s. Tex., and n. in Miss. Valley to se. Okla., Ark., and n. Miss. Also Bahamas and a var. in Cuba. Atlas vol. 4, maps 18-NE, 18-SE.

25. *Betula nigra* L., river birch. Sw. Conn. and se. N.Y., w. to n. Ohio, n. Ind., c. Wis., and se. Minn., s. to e. Iowa, se. Kans., e. Okla., and e. Tex., and e. to n. Fla. and Ga. Also local in ne. and sw. New Engl. to s. N.H. Atlas vol. 1, map 110-E.

26. *Bumelia lanuginosa* (Michx.) Pers., gum bumelia. C. Fla. and Ga. w. to s. Miss., La., and in Miss. Valley to s. Ill., c. Mo., e. and s. Kans., and w. and s. Tex., and s. to ne. Mex. (Coah., N.L., and Tamps.). Also a var. in extreme sw. N. Mex., se. Ariz., and ne. Son. Atlas vol. 3, map 24; vol. 4, map 20.

27. *Bumelia lycioides* (L.) Pers., buckthorn bumelia. Coastal Plain from se. Va. s. to n. Fla., w. to se. Tex., and n. in Miss. Valley to se. Mo., s. Ill., s. Ind., c. Ky., and e. Tenn. Atlas vol. 4, map 21.

28. *Bumelia tenax* (L.) Willd., tough bumelia. Coastal Plain of S.C., mostly near coast, se. and s. Ga., s. to s. Fla. Atlas vol. 4, map 22.

29. *Carpinus caroliniana* Walt., American hornbeam. C. Me. to sw. Que., se. Ont., n. Mich., and n. Minn., s. to c. Iowa, Mo., e. Okla., and e. Tex., and e. to c. Fla. Also in ne. Mex. (Tamps.) and from s. Mex. to Guatemala and Honduras. Atlas vol. 1, maps 109-N, 109-E.

30. *Carya aquatica* (Michx. f.) Nutt., water hickory. Coastal Plain from se. Va. and e. N.C. s. to s. Fla. and w. to e. Tex., n. in Miss. Valley to extreme se. Okla., se. Mo., extreme s. Ill., and extreme w. Ky. Also extinct in extreme sw. Ind. Atlas vol. 1, map 111-E.

31. *Carya cordiformis* (Wangenh.) K. Koch, bitternut hickory. Sw. N.H., Vt., and extreme s. Que. w. to s. Ont., c. Mich., and n. Minn., s. to e. Nebr., c. Okla., and e. Tex., and e. to nw. Fla. and Ga. Atlas vol. 1, map 112-E.

32. *Carya floridana* Sarg., scrub hickory. Local in c. Fla. (Volusia and Marion Co., s. to Charlotte and Palm Beach Cos.). Atlas vol. 4, map 23.

33. *Carya glabra* (Mill.) Sweet, pignut hickory. Mass. and sw. N.H. w. to N.Y., extreme s. Ont., c. Mich., n. Ill., and extreme se. Iowa, s. to extreme se. Kans., Ark., and e. Tex., and e. to c. Fla. Atlas vol. 1, map 113-E.

34. *Carya pallida* (Ashe) Engl. & Graebn., sand hickory. Coastal Plain from s. N.J. and Del. s. to Ga., w. to nw. Fla. and se. La., and n. in Miss. Valley to Tenn., se. Ky., s. Ill., and sw. Ind. Also recorded from Conn. Atlas vol. 4, map 24.

35. *Carya tomentosa* Nutt., mockernut hickory. S. N.H. and Mass. w. to N.Y., extreme s. Ont., s. Mich., n. Ill., se. Iowa, Mo., and e. Kans., s. to e. Tex., and e. to n. Fla. Atlas vol. 1, map 117-E.

36. *Castanea alnifolia* Nutt., Florida chinkapin. Coastal Plain from N.C. to n. Fla. and se. La. Atlas vol. 4, map 26.

37. *Castanea dentata* (Marsh.) Borkh., American chestnut. S. Maine w. to N.Y., extreme s. Ont., se. Mich., Ohio, s. Ind., and extreme s. Ill., s. to s. Miss. and sw. Ga. Formerly also nw. Fla.

Almost exterminated nearly half century ago by the chestnut blight fungus, but stump sprouts persist. Atlas vol. 4, maps 27-NE, 27-SE.

38. *Castanea pumila* Mill., Allegheny chinkapin. N.J. and s. Pa., sw. to extreme e. Ky., Tenn., Ark., and se. Okla., and s. to e. Tex. and c. Fla. Also local in s. Ohio. Atlas vol. 4, map 29.

39. *Catalpa bignonioides* Walt., southern catalpa. Native probably in sw. Ga., nw. Fla., Ala., and Miss., the original distribution uncertain. Widely naturalized from s. New Engl. and N.Y. w. to Ohio, s. Mich., Mo., and Okla., and s. to e. Tex. and Fla. Atlas vol. 4, map 30.

40. *Celtis laevigata* Willd., sugarberry. S. Md. and se. Va. s. in Coastal Plain and Piedmont to s. Fla., w. to sw. Tex., and n. in Miss. Valley to w. Okla., s. Kans., n. Mo., c. Ill., s. Ind., and c. Ky. Also ne. Mex. (Tamps. to Coah.). Atlas vol. 1, maps 122-W, 122-E.

41. *Celtis tenuifolia* Nutt., Georgia hackberry. Pa. and extreme s. Ont., w. to Ind., Mo., and se. Kans., and s. to e. Tex. and n. Fla. Atlas vol. 4, map 31.

42. *Cephalanthus occidentalis* L., buttonbush. Sw. N.S., s. N.B., and Maine, w. to s. Que., s. Ont., and se. Minn., s. to w. Kans. and Trans-Pecos and s. Tex., and e. to s. Fla., and in Ariz. and Calif. Also s. in Mex. and C. Amer. to Honduras and in Cuba. The same or a closely related species also in e. Asia. Atlas vol. 3, maps 34-NW, 34-SW, 34-N; vol. 4, maps 32-NE, 32-SE, 32-N.

43. *Cercis canadensis* L., eastern redbud. N.J. and Pa., w. to s. Mich. and se. Nebr., s. to Trans-Pecos and s. Tex., and e. to c. Fla. Also n. Mex. (e. Chih. and Coah., e. to Tamps., and s. to S.L.P. and Hgo.). Extinct at 1 locality in extreme sw. Ont. Atlas vol. 3, maps 38-N, 38-SW; vol. 4, maps 33-N, 33-NE, 33-SE.

44. *Chionanthus virginicus* L., fringetree. S. N.J. and s. Pa., w. to s. Ohio, e. Ky., and s. Mo., s. to se. Okla. and e. Tex., and e. to c. Fla. Atlas vol. 4, map 43.

45. *Cliftonia monophylla* (Lam.) Britton, buckwheat-tree. Coastal Plain from se. Ga. and n. Fla., w. to se. La. Atlas vol. 4, map 37.

46. *Cornus alternifolia* L. f., alternate-leaf dogwood. Nfld. and se. Que. w. to Maine, s. Ont., Minn., and s. Man., s. to Mo., n. Ark., Miss., nw. Fla., and Ga. Atlas vol. 4, maps 38-NE, 38-SE, 38-N.

47. *Cornus florida* L., flowering dogwood. Extreme sw. Maine w. to N.Y., extreme s. Ont., c. Mich., c. Ill., and c. Mo., s. to extreme se. Kans., e. Okla., and e. Tex., and e. to n. Fla. Also var. in mts. of ne. Mex. (N.L. and Ver.). Atlas vol. 1, maps 124-N, 124-E.

48. *Cyrilla racemiflora* L., swamp cyrilla. Coastal Plain from se. Va. to c. Fla. and w. to se. Tex. Also West Indies in mts. from Cuba to P.R. and Lesser Antilles. Atlantic Coast of C. Am. from Belize to Nicaragua, and n. S. Am. from Guyana to Venezuela, Colombia, and Brazil. Atlas vol. 4, maps 45-N, 45-SE.

49. *Diospyros virginiana* L., common persimmon. S. Conn., extreme se. N.Y., and N.J., w. to c. Ohio, c. Ill., extreme se. Iowa, n. Mo., and e. Kans., s. to c. Okla. and c. Tex., and e. to s. Fla. incl. Fla. Keys. Atlas vol. 1, map 123-E.

50. *Erythrina herbacea* L., southeastern coralbean. Coastal Plain from se. N.C. and S.C. to s. Fla. incl. Fla. Keys, and w. to e. and s. Tex. Also e. Mex. (Tamps. s. to Pue., Oax., and Ver.). A tree in U.S. only in s. Fla. incl. Fla. Keys, and shrubby or herbaceous n. Atlas vol. 4, maps 48-N, 48-SE.

51. *Fagus grandifolia* Ehrh., American beech. Cape Breton Is., N.S., P.E.I., and N.B., w. to Maine, s. Que., s. Ont., and n. Mich.,

s. to e. Wis., extreme e. and s. Ill., se. Mo., n. Ark., se. Okla., and e. Tex., and e. to n. Fla. and Ga. Also var. in mts. of ne. Mex. (Tamps., Hgo., and Pue.). Atlas vol. 1, maps 125-N, 125-E.

52. *Forestiera acuminata* (Michx.) Poir., swamp-privet. Coastal Plain, chiefly, from s. S.C. to n. Fla. and w. to e. Tex., and n. in Miss. Valley to e. Okla., extreme se. Kans., ne. Mo., c. Ill., sw. Ind., and c. Tenn. Atlas vol. 4, map 50.

53. *Forestiera segregata* (Jacq.) Krug & Urban, Florida-privet. Along and near coasts from se. Ga. and ne. Fla. s. to Fla. Keys and n. on Gulf Coast to w. Fla. (Levy Co.). Also Bermuda, Bahamas, Greater Antilles to P.R. and V.I., and Antigua. Atlas vol. 4, map 51.

54. *Fraxinus americana* L., white ash. Cape Breton Is., N.S., P.E.I., and N.B., w. to Maine, s. Que., s. Ont., n. Mich., n. Wis., and e. Minn., s. to n. Iowa, e. Nebr., e. Okla., and e. Tex., and e. to n. Fla. Atlas vol. 1, maps 126-N, 126-E.

55. *Fraxinus caroliniana* Mill., Carolina ash. Coastal Plain from ne. Va. to s. Fla. and w. to se. Tex. and s. Ark. Also a var. in Cuba. Atlas vol. 4, map 53.

56. *Fraxinus pennsylvanica* Marsh., green ash. Cape Breton Is., N.S., N.B., s. Que., and Maine, w. to s. and sw. Ont., n. Mich., Minn., c. Man., c. Sask., and se. Alta., s. to c. Mont., ne. Wyo., extreme ne. Colo., Kans., and c. and se. Tex., and e. to nw. Fla. and Ga. Atlas vol. 1, maps 130-W, 130-E, 130-N.

57. *Fraxinus profunda* (Bush) Bush, pumpkin ash. Local in swamps and river bottoms, chiefly in Coastal Plain from s. Md. and se. Va. s. to n. Fla. and w. to La., and n. in Miss. Valley to se. Mo., s. Ill., Ind., and sw. Ohio. Atlas vol. 4, map 54.

58. *Gleditsia aquatica* Marsh., waterlocust. Coastal Plain from S.C. to c. Fla. and w. to e. Tex., and n. in Miss. Valley to Mo., s. Ill., extreme sw. Ind., and w. Ky. Not recorded from Ala. Atlas vol. 4, map 55.

59. *Gleditsia triacanthos* L., honeylocust. C. Pa. w. to Ohio, extreme s. Ont., s. Mich., s. Wis., extreme se. Minn., Iowa, and se. S. Dak., s. to e. Nebr., c. Kans., c. and w. Okla., and c. and se. Tex., and e. to Ala. and nw. Fla., and ne. to extreme nw. Ga., sw. Va., and w. Md. Naturalized e. of Appalachian Mts. from S.C. n. to N.Y. and New Engl. and w. Atlas vol. 1, maps 132-W, 132-E.

60. *Gordonia lasianthus* (L.) Ellis, loblolly-bay. Coastal Plain from e. N.C. to c. Fla. and s. Miss. Atlas vol. 4, map 56.

61. *Halesia carolina* L., Carolina silverbell. Mostly in mts. from sw. Va., s. W. Va., and s. Ohio, w. to extreme s. Ill., and s. to w. Tenn., Ala., n. Fla., and n. to N.C. Also in Ark. and se. Okla. Atlas vol. 4, map 58.

62. *Halesia diptera* Ellis, two-wing silverbell. Coastal Plain from extreme s. S.C. and Ga. to nw. Fla., w. to se. Tex. and s. Ark. (Nevada Co.). Atlas vol. 4, map 59.

63. *Halesia parviflora* Michx., little silverbell. Local, chiefly in Coastal Plain, S.C. (Saluda Co.), Ga., n. Fla., Ala., and Miss. Atlas vol. 4, map 60.

64. *Hamamelis virginiana* L., witch-hazel. N.S., N.B., Maine, and s. Que., w. to s. Ont., n. Mich., and se. Minn., s. to e. Iowa, Ark., se. Okla., and Edwards Plateau and se. Tex., and e. to c. Fla. Also in ne. Mex. (Tamps.). Atlas vol. 4, maps 61-N, 61-NE, 61-SE.

65. *Ilex ambigua* (Michx.) Torr., Carolina holly. Coastal Plain, chiefly, from N.C. to c. Fla. and e. Tex., n. to se. Okla., n. Ark., and n. Ala. Atlas vol. 4, map 62.

66. *Ilex cassine* L., dahoon. Coastal Plain, mostly near coast from se. N.C. to s. Fla. and w. to s. La. Recorded long ago from se. Tex. (Brazoria Co.). Also local in Bahamas, w. Cuba, and ne. P.R., and a var. in c. Mex. (Ver. and Mex.). Atlas vol. 4, maps 64-N, 64-SE.

67. *Ilex coriacea* (Pursh) Chapm., large gallberry. Coastal Plain from se. Va. to n. Fla. and w. to se. Tex. Atlas vol. 4, map 65.

68. *Ilex decidua* Walt., possumhaw. Md. and Va., s. in Coastal Plain and Piedmont to c. Fla., and w. to se. and c. Tex., and n. in interior to e. Okla., se. Kans., ne. Mo., c. Ill., se. Ind., w. Ky., and se. Tenn. Also ne. Mex. (Tamps. and N.L.). Atlas vol. 4, map 66.

69. *Ilex montana* Torr. & Gray, mountain winterberry. Mts. mostly, from w. Mass. and c. and sw. N.Y., s. to e. Ky., c. Tenn., n. Ga., and S.C. Also local s. and w. to nw. Fla., s. Ala., Miss., and La. Also a var. or closely related sp. in Japan. Atlas vol. 4, map 68.

70. *Ilex myrtifolia* Walt., myrtle dahoon. Coastal Plain from N.C. to c. Fla. and w. to se. La. Recorded long ago from se. Tex. Atlas vol. 4, map 69.

71. *Ilex opaca* Ait., American holly. E. Mass., s. Conn., and se. N.Y. (Long Is.), sw. to se. Pa., W. Va., extreme s. Ohio, e. and c. Ky., se. Mo., and se. Okla., s. to e. and s.c. Tex., and e. to c. Fla. Atlas vol. 1, map 131-E.

72. *Ilex verticillata* (L.) A. Gray, common winterberry. Nfld., P.E.I., N.S., N.B., s. Que., and Maine, w. to s. Ont., n. Mich., and ne. Minn., s. to ne. Iowa, se. Mo., Ark., and se. La., and e. to n. Fla. Atlas vol. 4, maps 70-N, 70-NE, 70-SE.

73. *Ilex vomitoria* Ait., yaupon. Coastal Plain from se. Va. to c. Fla., and w. to s. and c. Tex., and n. to extreme se. Okla., sw. Ark., n. Miss., and n. Ala. Also a var. in s. Mex. (Chis.). Naturalized in Bermuda. Atlas vol. 4, maps 71-N, 71-SE.

74. *Illicium floridanum* Ellis, Florida anise-tree. Coastal Plain of nw. Fla. to c. Ala., s. Miss., and se. La. Also ne. Mex. (Tamps.). Atlas vol. 4, maps 72-N, 72-NE.

75. *Illicium parviflorum* Michx., yellow anise-tree. Rare and local in c. Fla. (Volusia, Marion, Lake, Seminole, and Polk Cos.). Atlas vol. 4, map 73.

76. *Juglans nigra* L., black walnut. W. Vt., w. Mass., and N.Y., w. to extreme s. Ont., c. Mich., s. Minn., e. S. Dak., and ne. Nebr., s. to w. Okla. and c. Tex., and e. to nw. Fla. and Ga. Atlas vol. 1, map 134-E.

77. *Kalmia latifolia* L., mountain-laurel. Se. Maine w. to N.Y., Ohio, and s. Ind., s. to w. Tenn., e. Miss., and se. La., and e. to n. Fla. and Ga. Atlas vol. 4, maps 75-NE, 75-SE.

78. *Leitneria floridana* Chapm., corkwood. Rare and local in Coastal Plain in s. Ga., n. Fla., se. Tex., e. Ark., and se. Mo. Atlas vol. 4, map 74.

79. *Liquidambar styraciflua* L., sweetgum. Extreme sw. Conn. and extreme se. N.Y. to Va., W. Va., s. Ohio, and s. Ill., s. to se. Mo., Ark., se. Okla., and e. Tex., and e. to c. Fla. Also a var. in mts. of e. Mex. (Tamps. to Chis.) and Belize to Nicaragua. Atlas vol. 1, maps 135-N, 135-E.

80. *Liriodendron tulipifera* L., yellow-poplar. R.I., Mass., and Vt., w. to extreme s. Ont. and s. Mich., s. to s. Ill., se. Mo., e. Ark., and La., and e. to n. Fla. Atlas vol. 1, map 137-E.

81. *Lyonia ferruginea* Nutt., tree lyonia. Coastal Plain of extreme s. S.C. and se. Ga. to s. and nw. Fla. Atlas vol. 4, map 76.

82. *Magnolia acuminata* L., cucumbertree. Mts. mostly, from w. N.Y. to extreme s. Ont., Ohio, s. Ind., extreme s. Ill., and s. Mo., s. to se. Okla. and La., and e. to nw. Fla., c. Ga., and n. in mts. to Pa. Atlas vol. 1, map 140-E.

83. *Magnolia ashei* Weatherby, Ashe magnolia. Local in nw. Fla. (8 cos. from Leon and Wakulla Cos. w. to Okaloosa Co.). Atlas vol. 4, map 77.

84. *Magnolia grandiflora* L., southern magnolia. Coastal Plain from e. N.C. to c. Fla. and w. to e. Tex. Atlas vol. 1, map 141-E.

85. *Magnolia pyramidata* Bartr., pyramid magnolia. Coastal Plain, chiefly, from e. Ga. w. to nw. Fla., c. Ala., s. Miss., La., and se. Tex. Also local in S.C. (Richmond Co.). Atlas vol. 4, map 80.

86. *Magnolia virginiana* L., sweetbay. Coastal Plain, chiefly, from Long Is., N.J., and se. Pa., s. to s. Fla., w. to se. Tex., and n. to s. Ark. and s. Tenn. Also local in ne. Mass. Atlas vol. 1, map 142-E.

87. *Malus angustifolia* (Ait.) Michx., southern crab apple. Coastal Plain, chiefly, from s. N.J., Del., and Md., s. to n. Fla., and w. to s. La. and se. Tex., and n. to n. Ark., s. Ill., and w. Ky. Also local in s. Ohio and W. Va. Atlas vol. 4, map 82.

88. *Morus rubra* L., red mulberry. Mass. and s. Vt. w. to extreme s. Ont., s. Mich., c. Wis., and se. Minn., s. to Iowa, se. Nebr., c. Kans., w. Okla., and c. Tex., and e. to s. Fla. Atlas vol. 1, maps 139-W, 139-E.

89. *Myrica cerifera* L., southern bayberry. Coastal Plain from s. N.J., Del., and s. Md., s. to s. Fla. incl. Fla. Keys, and w. to s. and c. Tex., and n. to extreme se. Okla., c. Ark., and c. Miss. Also in Bermuda, Bahamas, Cuba, Hispaniola, and P.R. and in Mex. and C. Am. from Belize s. to Costa Rica. Atlas vol. 4, map 85.

90. *Myrica heterophylla* Raf., evergreen bayberry. Coastal Plain from s. N.J., se. Pa., and Del., s. to n. Fla., and w. to La. and n. to c. Ark. and n. Ala. Atlas vol. 4, map 86.

91. *Myrica inodora* Bartr., odorless bayberry. Coastal Plain of sw. Ga., nw. Fla., s. Ala., s. Miss., and se. La. Atlas vol. 4, map 87.

92. *Nyssa aquatica* L., water tupelo. Coastal Plain from se. Va. to n. Fla., w. to se. Tex., and n. in Miss. Valley to e. Ark., se. Mo., s. Ill., w. Ky., and w. Tenn. Atlas vol. 1, map 143-E.

93. *Nyssa ogeche* Bartr., Ogeechee tupelo. Coastal Plain in extreme s. S.C., s. Ga., and n. and nw. Fla. Atlas vol. 1, map 145-E.

94. *Nyssa sylvatica* Marsh., black tupelo; blackgum. Sw. Maine w. to N.Y., extreme s. Ont., c. Mich., e. Ill., and c. Mo., s. to e. Okla. and e. Tex., and e. to c. Fla. Also extreme se. Wis. (perhaps extinct). Local in mts. of c. and s. Mex. (Hgo., Pue., and Chis.). Atlas vol. 1, maps 144-N, 144-E.

95. *Osmanthus americanus* (L.) Benth. & Hook. f., devilwood. Coastal Plain from se. Va. and e. N.C. to c. Fla., and w. to se. La. Also Mex. (N.L., Tamps., Ver., Oax.). Atlas vol. 4, map 90.

96. *Ostrya virginiana* (Mill.) K. Koch, eastern hophornbeam. Cape Breton Is., P.E.I., N.S., N.B., s. Que., and Maine, w. to s. Ont., n. Mich., n. Minn., and se. Man., s. to e. N. Dak., Black Hills of S. Dak., and Wyo., n. Nebr., e. Kans., e. Okla. and e. Tex., and e. to n. Fla. Also in mts. of Mex. (N.L. to Son. s. to Chis.), s. to El Salvador and Honduras. Atlas vol. 1, maps 146-N, 146-W, 146-E.

97. *Oxydendrum arboreum* (L.) DC., sourwood. Sw. Pa. to s. Ohio and s. Ind., s. to w. Ky., w. Tenn., Miss., and La., e. to nw. Fla., and n. to e. Ga., se. Va. and se. Md. Atlas vol. 4, map 91.

98. *Persea borbonia* (L.) Spreng., redbay. Coastal Plain from s. Del., se. Md., and se. Va., s. to s. Fla. incl. Fla. Keys, and w. to La. and e. and s. Tex., also sw. Ark. (Miller Co., apparently extinct). Also Bahamas (Grand Bahamas Is.). Atlas vol. 4, map 92.

99. *Pinckneya pubens* Michx., pinckneya. Rare in Coastal Plain of extreme s. S.C. (Beaufort Co.), Ga., and n. and nw. Fla. Atlas vol. 4, map 93.

100. *Planera aquatica* Gmel., planertree. Coastal Plain from se. N.C. to n. Fla. and w. to e. Tex., and n. in Miss. Valley to se. Okla., Ark., se. Mo., s. Ill., w. Ky., and w. Tenn. Atlas vol. 4, map 94.

101. *Platanus occidentalis* L., sycamore. Sw. Maine w. to N.Y., extreme s. Ont., c. Mich., s. Wis., Iowa, and extreme e. Nebr., s. to e. Kans., e. Okla., and s. c. Tex., and e. to nw. Fla. and se. Ga. Also in mts. of ne. Mex. (Coah., N.L., Tamps., and S.L.P.). Atlas vol. 1, maps 147-W, 147-E, 147-N.

102. *Populus deltoides* Bartr., eastern cottonwood. Sw. N.H., Vt., N.Y., and extreme s. Que., w. to s. Ont., c. Mich., n. Wis., c. Minn., N. Dak., sw. Man., s. Sask., and s. Alta., s. to Mont., e. Wyo., e. Colo., extreme ne. N. Mex., and nw. and c. Tex., and e. to nw. Fla. and Ga. Atlas vol. 1, maps 149-W, 149-E.

103. *Populus heterophylla* L., swamp cottonwood. Coastal Plain from Conn., Long Is., and N.J., s. to extreme e. Ga., and from nw. Fla. w. to e. La., and n. in Miss. Valley to se. Mo., w. Ky., s. Ill., Ind., Ohio, and s. Mich. Atlas vol. 1, map 151-E.

104. *Prunus americana* Marsh., American plum. Widespread from N.H. and Vt. w. to N.Y., s. Ont., n. Mich., Minn., s. Man., se. Sask., and Mont., s. in mts. to N. Mex. and in e. from Okla. to ne. Fla. Atlas vol. 3, maps 119-NW, 119-SW; maps 95-NE, 95-SE.

105. *Prunus angustifolia* Marsh., Chickasaw plum. Mo. w. to Kans., s. Nebr., and extreme se. Colo., s. to extreme e. N. Mex., Tex., and La. Also naturalized e. to c. Fla. and n. to N.J., W. Va., s. Ohio, and Ill. Extremely naturalized and perhaps spread by Indians in prehistoric times. The original native range thus is not accurately known but probably was c. Tex. and Okla., according to Sargent (1926, p. 570). Atlas vol. 3, map 120; vol. 4, map 97.

106. *Prunus caroliniana* (Mill.) Ait., Carolina laurelcherry. Coastal Plain from se. N.C. to c. Fla. and w. to e. Tex. Atlas vol. 4, map 98.

107. *Prunus serotina* Ehrh., black cherry. N.S., N.B., and Maine, w. to s. Que., s. Ont., n. Mich., and e. Minn., s. to Iowa, extreme e. Nebr., e. Okla., and e. Tex., and e. to c. Fla. Also vars. in c. Tex. (Edwards Plateau) and mts. from Trans-Pecos Tex. w. to c. Ariz., s. in Mex. (Son. to Tamps., s. to Oax. and Chis.) to Guatemala. Also s. B. Cal. Sur and Revillagigedo Is. Atlas vol. 1, maps 155-N, 155-W, 155-E.

108. *Prunus umbellata* Ell., flatwoods plum. Coastal Plain, chiefly, from s. N.C. s. to c. Fla., w. to e. Tex., and n. to s. Ark. Atlas vol. 4, map 105.

109. *Ptelea trifoliata* L., common hoptree. N.J. and w. N.Y., w. to extreme s. Ont., c. Mich., s. Wis., se. Iowa, e. Kans., and in mts. to s. Colo. and s. Utah, s. to Ariz., Tex., and s. Fla. Also local in s. Que., perhaps introduced. Also Mex. (ne. Son. e. to Tamps., s. to Gro. and Oax.). Atlas vol. 3, maps 128-N, 128-SW; vol. 4, maps 106-N, 106-NE, 106-SE.

110. *Quercus alba* L., white oak. Sw. Maine and extreme s. Que., w. to s. Ont., c. Mich., n. Wis., and se. Minn., s. to w. Iowa, extreme e. Nebr., e. Okla., and e. Tex., and e. to n. Fla. and Ga.

Also extinct in se. Nebr. Atlas vol. 1, map 157-E.

111. *Quercus arkansana* Sarg., Arkansas oak. Coastal Plain, chiefly, in sw. Ga. nw. Fla., Ala., se. La., and sw. Ark. Atlas vol. 4, map 107.

112. *Quercus chapmanii* Sarg., Chapman oak. Coastal Plain from extreme s. S.C. and se. Ga. to s. and nw. Fla. and s. Ala. Atlas vol. 4, map 108.

113. *Quercus durandii* Buckl., Durand oak. Coastal Plain, chiefly, from N.C. to n. Fla. and w. to s. and c. Tex., and n. to s. Okla., s. Ark., and n. Ala. Also ne. Mex. (Coah. and Tamps.). Atlas vol. 4, map 109.

114. *Quercus falcata* Michx., southern red oak. Long Is. (N.Y.), N.J., se. Pa., and Md., w. to W. Va., s. Ohio, s. Ill., s. Mo., and e. Okla., s. to e. Tex., and e. to n. Fla. Atlas vol. 1, map 165-E.

115. *Quercus incana* Bartr., bluejack oak. Coastal Plain from se. Va. to c. Fla. and w. to La. and e. and c. Tex., and n. to se. Okla. and sw. Ark. Atlas vol. 4, map 113.

116. *Quercus laevis* Walt., turkey oak. Coastal Plain from se. Va. to c. Fla. and w. to se. La. Atlas vol. 4, map 114.

117. *Quercus laurifolia* Michx., laurel oak. Coastal Plain from se. Va. to s. Fla., w. to se. Tex., and n. locally to s. Ark. and s. Tenn. Atlas vol. 1, map 168-E.

118. *Quercus lyrata* Walt., overcup oak. Coastal Plain from Del. and e. Md. to Ga. and nw. Fla., w. to e. Tex., and n. in Miss. Valley to extreme se. Okla., se. Mo., s. Ill., sw. Ind., and w. Ky. Atlas vol. 1, map 169-E.

119. *Quercus marilandica* Muenchh., blackjack oak. Long Is. (N.Y.) and N.J. w. to se. Pa., Md., s. Ohio, s. Ind., c. Ill., and s. Iowa, s. to e. Kans., w. Okla., and c. and se. Tex., and e. to nw. Fla. and Ga. Also local in s. Mich. Atlas vol. 1, map 171-E.

120. *Quercus michauxii* Nutt., swamp chestnut oak. Coastal Plain from N.J. and extreme e. Pa. s. to n. Fla. and w. to e. Tex., and n. in Miss. Valley to extreme se. Okla., Ark., se. Mo., s. Ill., s. Ind. and locally to se. Ky. and e. Tenn. Atlas vol. 1, map 174-E.

121. *Quercus myrtifolia* Willd., myrtle oak. Coastal Plain from s. S.C. to s. Fla. and w. to s. Miss. Atlas vol. 4, map 115.

122. *Quercus nigra* L., water oak. Coastal Plain from s. N.J. and Del. s. to s. Fla. and w. to e. Tex., and n. in Miss. Valley to se. Okla., Ark., se. Mo., and w. and s. Tenn. Atlas vol. 1, map 175-E.

123. *Quercus phellos* L., willow oak. Coastal Plain from N.J. and se. Pa. s. to Ga. and n. Fla., w. to e. Tex., and n. in Miss. Valley to se. Okla., Ark., se. Mo., s. Ill., w. and s. Ky., and e. Tenn. Atlas vol. 1, map 178-E.

124. *Quercus muehlenbergii* Engelm., chinkapin oak. W. Vt. and N.Y. s. to s. Ont., s. Mich., s. Wis., extreme se. Minn., and Iowa, s. to se. Nebr., e. Kans., w. Okla., and c. Tex., e. to nw. Fla., and n. mostly in mts. to Pa. and w. Conn. Also local in mts. of se. N. Mex., Trans-Pecos Tex., and ne. Mex. (N.L. and Tamps.). Atlas vol. 1, maps 173-W, 173-E.

125. *Quercus shumardii* Buckl., Shumard oak. Coastal Plain mostly from N.C. to n. Fla. and w. to c. Tex., n. in Miss. Valley to c. Okla., e. Kans., Mo., s. Ill., Ind., w. and s. Ohio, Ky., and Tenn. Also local n. to s. Mich., s. Pa., and Md. Atlas vol. 1, maps 181-W, 181-E.

126. *Quercus stellata* Wangenh., post oak. Se. Mass., R.I., s. Conn., and extreme se. N.Y. (incl. Long Is.), w. to se. Pa., W. Va., c. Ohio, s. Ind., c. Ill., se. Iowa, and n. Mo., s. to e. Kans.,

w. Okla., and nw. and c. Tex., and e. to c. Tex. Atlas vol. 1, maps 182-W, 182-E.

127. *Quercus velutina* Lam., black oak. Sw. Me. w. to N.Y., extreme s. Ont., c. Mich., c. Wis., se. Minn., and Iowa, w. to extreme e. Nebr., e. Kans., c. Okla., and e. Tex., and e. to nw. Fla., and Ga. Atlas vol. 1, map 183-E.

128. *Quercus virginiana* Mill., live oak. Coastal Plain near coast from se. Va. s. to s. Ga. and s. Fla. incl. Fla. Keys, and w. to s. and c. Tex. Also local in sw. Okla. and mts. of ne. Mex. (Coah., N.L., and Tamps.). Atlas vol. 1, maps 184-N, 184-W, 184-E.

129. *Rhamnus caroliniana* Walt., Carolina buckthorn. Extreme s. Ohio w. to s. Ill. and c. Mo., s. to e. Okla. and c. and e. Tex., e. to c. Fla., and n. to c. S.C. and sw. Va. Also ne. Mex. (Tamps. and N.L.). Atlas vol. 4, maps 117-N, 117-SE.

130. *Rhus copallina* L., shining sumac. Sw. Maine w. to N.Y., s. Ont., c. Mich., and c. Wis., s. to se. Iowa, extreme se. Nebr., e. Kans., c. Okla., and c. Tex., e. to s. Fla. (except Fla. Keys). Also w. Cuba. Atlas vol. 4, maps 120-NE, 120-SE.

131. *Rhus glabra* L., smooth sumac. Very widely distributed in all 48 contiguous States (though at only 2 localities in Nev. and collected only once in Calif.). C. Maine w. to extreme s. Que., s. Ont., n. Minn., e. N. Dak., Man., and e. Sask., s. to nw. and c. Tex., and e. to nw. Fla. Also scattered and mostly in mts. in w. from s. B.C. and w. Wash., s. to se. Ariz. and s. N. Mex. Also local in n. Mex. (Son., Chih., and Tamps.). Atlas vol. 3, maps 155-NW, 155-SW; vol. 4, maps 121-NE, 121-SE.

132. *Sabal minor* (Jacq.) Pers., dwarf palmetto. Coastal Plain from ne. N.C. s. to s. Fla., and w. to e. and c. Tex., and n. to extreme se. Okla. and s. Ark. Atlas vol. 4, map 125.

133. *Sabal palmetto* (Walt.) Lodd., cabbage palmetto. Coastal Plain near coast from se. N.C. (Cape Hatteras and Cape Fear) s. to s. Fla. incl. Fla. Keys, and w. to nw. Fla. (St. Andrews Bay in Bay Co.). Atlas vol. 1, map 188-E.

134. *Salix caroliniana* Michx., Coastal Plain willow. S. Pa. w. to n. Mo. and extreme se. Nebr., s. to e. Kans., s. Okla., and c. Tex., e. to s. Fla. incl. Fla. Keys, and in Coastal Plain to se. Va. Also Cuba. Atlas vol. 4, map 126.

135. *Salix floridana* Chapm., Florida willow. Rare, s. Ga. to nw. and c. Fla. Atlas vol. 4, map 130.

136. *Salix nigra* Marsh., black willow. S. N.B. and c. Maine, w. to extreme s. Que., extreme s. Ont., c. Mich., n. Wis., se. Minn. and Iowa, s. to c. Nebr., w. Okla., nw. and s. Tex., and e. to nw. Fla. and Ga. Var. from Trans-Pecos Tex. w. to s. N. Mex., Ariz., s. Utah, s. Nev., and s. to n. Calif. Local in n. Mex. (extreme ne. B. Cal., Son., and Sin., e. to Dgo. and Tamps.). Atlas vol. 1, maps 190-N, 190-W, 190-E; vol. 3, maps 177-N, 177-NW, 177-SW.

137. *Sambucus canadensis* L., American elder. N.S. (Cape Breton Is.), P.E.I., N.B., s. Que., Maine, w. to s. Ont., n. Mich., n. Minn., and se. Man., s. to e. N.D., w. Kans., and nw., c., and s. Tex., and e. to s. Fla. Also introduced in West Indies, including P.R. and V.I. and in C. Am. Atlas vol. 4, maps 136-NE, 136-SE, 136-N.

138. *Sassafras albidum* (Nutt.) Nees, sassafras. Sw. Maine w. to N.Y., extreme s. Ont., c. Mich., n. Ill., extreme se. Iowa, and c. Mo., s. to extreme se. Kans., e. Okla., and e. Tex., and e. to c. Fla. Atlas vol. 1, map 191-E.

139. *Serenoa repens* (Bartr.) Small, saw-palmetto. Coastal Plain from extreme s. S.C. s. to s. Fla. incl. Fla. Keys, and w. to s. Miss.

and se. La. Atlas vol. 4, map 137.

140. *Staphylea trifolia* L., American bladdernut. N.H., Vt., and extreme s. Que., w. to s. Ont., Mich., n. Wis., and se. Minn., s. to e. Nebr. and e. Okla., and e. to Ark., nw. Fla., and Ga. Atlas vol. 4, maps 143-NE, 143-SE.

141. *Stewartia malacodendron* L., Virginia stewartia. Coastal Plain, chiefly, from e. Va. and N.C., sw. to nw. Fla., La., se. Tex., and s. Ark. Atlas vol. 4, map 146.

142. *Styrax americana* Lam., American snowbell. Coastal Plain, chiefly, from se. Va. to c. Fla., and w. to e. Tex., n. in Miss. Valley to extreme se. Okla., se. Mo., s. Ill., sw. Ind., and w. Ky. Atlas vol. 4, map 148.

143. *Styrax grandifolia* Ait., bigleaf snowbell. Coastal Plain, chiefly, from extreme se. Va. and N.C. to n. Fla. and w. to w. La., and n. to w. Ark. and w. Tenn., also local in s. Ohio (Athens Co.). Atlas vol. 4, map 149.

144. *Symplocos tinctoria* (L.) L'Hér., common sweetleaf. Coastal Plain, chiefly, from s. Del., se. Md., and se. Va. to n. and c. Fla., and w. to e. Tex., n. in Miss. Valley to extreme se. Okla. and c. Ark. Atlas vol. 4, map 151.

145. *Tilia caroliniana* Mill., Carolina basswood. Coastal Plain and Piedmont from N.C. to c. Fla., w. to e. and c. Tex., and n. to se. Okla. and c. Ark. Atlas vol. 4, map 153.

146. *Tilia heterophylla* Vent., white basswood. Sw. Pa. w. to s. Ohio, s. Ind., extreme s. Ill., and e. and s. Mo., s. to n. Ark., ne. Miss., Ala., sw. Fla., and Ga., and n. to Md. Also local ne. to e. Pa. and w. N.Y. Atlas vol. 1, map 194-E.

147. *Toxicodendron vernix* (L.) Kuntze, poison-sumac. S. Maine w. to extreme s. Que., N.Y., s. Ont., c. Mich., c. Wis., and se. Minn., se. to Ill., se. Tenn., e. Tex., and c. Fla. Atlas vol. 4, maps 152-NE, 152-SE.

148. *Ulmus alata* Michx., winged elm. S. Va. w. to Ky., s. Ind., s. Ill., and s. Mo., s. to c. Okla. and c. and se. Tex., and e. to c. Fla. Also local in Md. Atlas vol. 1, map 195-E.

149. *Ulmus americana* L., American elm. Cape Breton Is., N.S., P.E.I., N.B., and s. Que. (Gaspé), w. to c. Ont., s. Man., and se. Sask., s. to extreme e. Mont., extreme ne. Wyo., w. Nebr., w. Kans., w. Okla., and nw., c., and se. Tex., and e. to c. Fla. Atlas vol. 1, maps 196-N, 196-W, 196-E.

150. *Ulmus crassifolia* Nutt., cedar elm. Extreme sw. Tenn., Ark., and s. Okla., s. to c. and s. Tex. and extreme ne. Mex. (N.L. and Tamps.), and e. to La. and w. Miss. Also local in n. Fla. Atlas vol. 1, map 197-E.

151. *Ulmus rubra* Muhl., slippery elm. Sw. Maine w. to N.Y., extreme s. Que., s. Ont., n. Mich., c. Minn., and se. N. Dak., s. to e. S. Dak., c. Nebr., w. Okla., and c. Tex., and e. to nw. Fla. and Ga. Atlas vol. 1, maps 198-W, 198-E.

152. *Vaccinium arboreum* Marsh., tree sparkleberry. Va. w. to Ky., s. Ind., s. Ill., and extreme se. Kans., s. to e. Okla. and e. and se. Tex., and e. to c. Fla. Atlas vol. 4, map 154.

153. *Viburnum nudum* L., possumhaw viburnum. Coastal Plain, chiefly, from s. Conn., Long Is., N.J., and sw. Pa., to c. Fla., w. to e. Tex., and n. to c. Ark. and w. Tenn. Atlas vol. 4, map 156.

154. *Viburnum obovatum* Walt., Walter viburnum. Coastal Plain from e. S.C. to c. and nw. Fla. Atlas vol. 4, map 157.

155. *Viburnum rufidulum* Raf., rusty blackhaw. Se. Va. w. to Ky., s. Ohio, s. Ind., c. Mo., and e. Kans., s. to c. Okla. and c. and e. Tex., and e. to n. Fla. Atlas vol. 4, map 160.

156. *Yucca aloifolia* L., aloe yucca. Coastal dunes and mounds from se. N.C. to s. Fla. incl. Fla. Keys and w. to s. Ala. Atlas vol. 4, map 161.

157. *Yucca gloriosa* L., moundlily yucca. Coastal dunes and beaches from ne. N.C. to se. Ga. and extreme ne. Fla. Atlas vol. 4, map 162.

158. *Zanthoxylum clava-herculis* L., Hercules-club. Coastal Plain from e. Va. to s. Fla. and w. to e. Tex., and n. to se. Okla. and c. Ark. Atlas vol. 4, map 165.

158.1 *Ilex amelanchar* M. A. Curt., sarvis holly. Rare and local in Coastal Plain in N.C., S.C., Ga., nw. Fla., Ala., Miss., and se. La. Atlas vol. 4, map 63.

158.2 *Ilex longipes* Chapm., Georgia holly. W. N.C., S.C., and s. Tenn., s. to nw. Fla., and w. to La., sw. Ark., and e. Tex.

158.3 *Euonymus atropurpureus* Jacq., eastern burningbush. C. N.Y. and extreme s. Ont., w. to s. Mich., c. Wis., c. Minn., and se. N. Dak., s. to e. Nebr., c. Okla., and c. Tex., e. to Ark., Miss., Ga., and nw. Fla. (Gadsden Co.), and n. to N.J. Atlas vol. 4, maps 49-NE, 49-SE.

158.4. *Magnolia tripetala* L., umbrella magnolia. S. Pa. w. to s. Ohio and s. Ind. (Crawford Co.), s. to c. Tenn., se. Miss., nw. Fla. (Okaloosa Co.), and Ga. Also local in Ozark Plateau of Ark. and se. Okla. (LeFlore Co.). Atlas vol. 4, map 81.

158.5 *Asimina parviflora* (Michx.) Dunal, smallflower pawpaw. Se. Va. s. to c. Fla., w. to e. Tex., and n. to extreme s. Ark.

158.6 *Cornus stricta* Lam., swamp dogwood. Chiefly in Coastal Plain from Va. to c. Fla. and e. Tex., n. in Miss. Valley to se. Okla., se. Mo., c. Ill., s. Ind., and Ky. Atlas vol. 4, map 42.

159. *Acacia choriophylla* Benth., cinnecord. Very rare on n. Key Largo in Upper Fla. Keys, not on Fla. mainland (Alexander 1968). One tree found in 1967 may have been destroyed by a fire in 1975. Another was located in 1977. Bahamas and Cuba.

160. *Acacia macracantha* Humb. & Bonpl. ex Willd., long-spine acacia. Very rare on Ramrod Key (near Big Pine Key) in Lower Fla. Keys, not on Fla. mainland (Ward 1967). Fifteen plants found in 1963, apparently native. Also introduced in s. Fla. and escaping. From Bahamas through West Indies including P.R. and V.I. Also n. S. Am. from Colombia and Venezuela to Ecuador and Peru. (A related sp. possibly not distinct, n. in C. Am. to Mex.)

161. *Acoelorrhaphe wrightii* (Griseb. & H. Wendl.) H. Wendl., paurotis-palm. Local in s. Fla. (Dade, Monroe, and Collier Cos.). Bahamas, Cuba, and Atlantic Coast of Honduras and Nicaragua.

162. *Alvaradoa amorphoides* Liebm., Mexican alvaradoa. Local in several hammocks of s. Fla. (s. Dade Co.). Reported from Key Largo, Cuba, Bahamas, and from n. Mex. (Son., Chih., and s.) s. to Costa Rica.

163. *Amphitecna latifolia* (Mill.) A. H. Gentry, black-calabash. Very rare in s. Fla. (Biscayne Bay incl. Brickell Hammock, Dade Co.). Widespread in tropical Am. in West Indies incl. P.R. and V.I., and from s. Mex. s. to Ecuador and Venezuela.

164. *Amyris balsamifera* L., balsam torchwood. S. Fla. (Matte-son Hammock, Dade Co.), apparently rare and local. Cuba, Jamaica, Hispaniola, P.R. Honduras, and nw. S. Am. in Colombia, Venezuela, and Ecuador.

165. *Amyris elemifera* L., torchwood. S. and e. Fla. from Lower Fla. Keys n. along Atlantic Coast to Volusia Co. (also Nassau Co.). From Bahamas through West Indies incl. P.R. and V.I. C. Am. in Guatemala, Belize, Honduras, and El Salvador.

166. *Annona glabra* L., pond-apple. S. Fla. incl. Fla. Keys. Widely distributed in tropical Am. from Bahamas through West Indies incl. P.R. and V.I. S. Mex. s. along Atlantic Coast to Brazil, and s. along Pacific Coast to Ecuador incl. Galápagos Is. Also coast of w. Africa.
167. *Ardisia escallonioides* Schiede & Deppe, marlberry. S. Fla. incl. Fla. Keys, n. on e. coast to Volusia and Flagler Cos. and on w. coast to Pinellas Co. Bahamas, Cuba, Hispaniola, and from ne. Mex. (Tamps. and S.L.P.) s. to Guatemala.
168. *Avicennia germinans* (L.) L., black-mangrove. Silt shores of coasts and islands of n. to s. Fla. incl. Fla. Keys, n. locally to St. Johns Co. on e. coast and to s. Miss., s. La., and s. Tex. Also widely distributed on coasts of tropical Am. from Bermuda and Bahamas through West Indies incl. P.R. and V.I. From n. Mex. (Tamps., Son., and B. Cal. Norte) s. on Atlantic Coast to Brazil and on Pacific Coast to Ecuador incl. Galápagos Is. and nw. Peru. The same or a very closely related sp. on coasts of w. Africa. Atlas vol. 4, maps 17-N, 17-SE.
169. *Bourreria ovata* Miers, Bahama strongbark. Fla. Keys and s. Fla. mainland (s. Monroe Co.). Bahamas, Cuba, and Hispaniola.
170. *Bourreria radula* (Poir.) G. Don, rough strongbark. Rare at Key West and adjacent Lower Florida Keys, not on s. Fla. mainland. Also e. to Hispaniola.
171. *Bumelia celastrina* H.B.K., saffron-plum. Coasts of c. and s. Fla. incl. Fla. Keys and s. Tex. Bahamas and Cuba. Also Mexico (Tamps. and N.L. s. to Chis. and Yuc., and Sin.), Guatemala, El Salvador, Panama, Colombia, and Venezuela. Atlas vol. 3, maps 23-N, 23-SW.
172. *Bursera simaruba* (L.) Sarg., gumbo-limbo. S. Fla. incl. Fla. Keys, n. near coasts to c. Fla. From Bahamas through West Indies incl. P.R. and V.I. Also from n. (Tamps. to Sin.) s. to Colombia, Venezuela, and Guyana.
173. *Byrsonima lucida* DC., key byrsonima. S. Fla. incl. Fla. Keys (Dade and Monroe Cos.). Bahamas, Cuba, Hispaniola, P.R. and V.I., and Lesser Antilles.
174. *Calyptanthes pallens* Griseb., pale lidflower. S. Fla. incl. Fla. Keys (Dade and Monroe Cos., also local in Hendry Co.). Bahamas, Greater Antilles incl. P.R. and V.I., Cayman Is., and Guadeloupe. Also vars. in Mex. and Guatemala.
175. *Calyptanthes zuzygium* (L.) Sw., myrtle-of-the-river. S. Fla., local on Key Largo and s. Dade Co. Also Bahamas and Greater Antilles incl. P.R.
176. *Canella winterana* (L.) Gaertn., canella. S. Fla. incl. Fla. Keys (Dade, Monroe, and s. Collier Cos.). From Bahamas through West Indies incl. P.R. and V.I.
177. *Capparis cynophallophora* L., Jamaica caper. Coasts of c. and s. Fla. incl. Fla. Keys. From Bahamas through West Indies incl. P.R. and V.I. Also from s. Mex. (Yuc. to Oax. s.) to Panama.
178. *Capparis flexuosa* (L.) L., limber caper. Coasts of s. Fla. (n. on e. coast to Cape Canaveral) incl. Fla. Keys. From Bahamas through West Indies incl. P.R. and V.I. Also from n. Mex. to Brazil, Argentina, and Peru.
179. *Cereus robinii* (Lem.) L. Benson, key tree-cactus. Very rare on Fla. Keys (Big Pine, and Lower and Upper Matecumbe Keys; extinct on Key West and Key Largo), not on s. Fla. mainland. Also Cuba.
180. *Chrysobalanus icaco* L., cocoplum. S. Fla. mostly along coasts (n. on e. coast to Cape Canaveral) incl. Fla. Keys. From Bahamas through West Indies incl. P.R. and V.I. Also from Mex. to Panama and s. on Atlantic Coast from Colombia to s. Brazil. Also coasts of w. Africa.
181. *Chrysophyllum oliviforme* L., satinleaf. S. Fla. incl. Fla. Keys. Also Bahamas and Greater Antilles to P.R. S. Mex. and Belize to Nicaragua.
182. *Citharexylum fruticosum* L., Florida fiddlewood. Local in s. Fla. incl. Fla. Keys, n. on e. coast to Cape Canaveral. From Bahamas through West Indies incl. P.R. and V.I. Also Venezuela to Surinam.
183. *Clusia rosea* Jacq., Florida clusia. Very rare and local on Lower Fla. Keys (Little Torch and Sugarloaf, and possibly extinct on Big Pine key), not on s. Fla. mainland. From Bahamas through West Indies incl. P.R. and V.I. Also from s. Mex. (Chis.) to Colombia, Venezuela, and French Guiana.
184. *Coccoloba diversifolia* Jacq., pigeon-plum. S. Fla. mostly near coasts, incl. Fla. Keys, n. on e. coast to Cape Canaveral. From Bahamas through West Indies incl. P.R. and St. Croix.
185. *Coccoloba uvifera* (L.) L., seagrape. Shores of c. and s. Fla. incl. Fla. Keys. Also Bermuda and from Bahamas through West Indies incl. P.R. and V.I. Atlantic Coast from n. Mex. to Colombia, Venezuela, and Guianas. Introduced in Hawaii.
186. *Coccothrinax argentata* (Jacq.) Bailey, Florida silverpalm. S. Fla. n. on e. coast to se. Palm Beach Co. and incl. Fla. Keys w. to Marquesas Key. Also Bahamas and Cuba.
187. *Colubrina arborescens* (Mill.) Sarg., coffee colubrina. S. Fla. incl. Fla. Keys (Dade and Monroe Cos.). Also Bahamas, Greater Antilles incl. P.R. and V.I., to Antigua and in Barbados. Also s. Mex., Guatemala, Honduras, and Nicaragua.
188. *Colubrina cubensis* (Jacq.) Brongn., Cuba colubrina. Local in hammocks of s. Fla. (s. Dade Co., incl. Long Pine Key in Everglades National Park). Also Bahamas, Cuba, and Hispaniola.
189. *Colubrina elliptica* (Sw.) Briz. & Stern, soldierwood. Upper Fla. Keys (Key Largo and Upper Matecumbe Key; absent from Fla. mainland). From Bahamas through West Indies incl. P.R. and V.I. Also s. Mex. (Ver. and Yuc.) and Guatemala.
190. *Conocarpus erectus* L., button-mangrove. Shores of c. and s. Fla. incl. Fla. Keys, w. to Marquesas Key and Dry Tortugas. Also widely distributed on coasts of tropical Am. from Bermuda and Bahamas through West Indies incl. P.R. and V.I. From n. Mex. (Tamps., Sin., and B. Cal. Sur) s. on Atlantic Coast to Brazil and on Pacific Coast to Ecuador incl. Galápagos Is. Also on coasts of w. Africa.
191. *Cordia sebestena* L., Geiger-tree. S. Fla. incl. Fla. Keys (s. Dade and s. Monroe Cos.), apparently introduced and naturalized. From Bahamas through West Indies incl. P.R. and V.I. Also from s. Mex. (Yuc.) to Colombia and Venezuela, the range extended through cultivation.
192. *Crossopetalum rhacoma* Crantz, Florida crossopetalum. S. Fla., incl. Fla. Keys and pinelands of Dade Co., and local in w. Collier Co. From Bahamas through West Indies incl. P.R. and V.I. Apparently extinct in Bermuda. Also s. Mex., Colombia, and Venezuela.

193. *Cupania glabra* Sw., Florida cupania. Very rare and local in Lower Fla. Keys (Big Pine, Johnson, and perhaps extinct on Summerland), not on s. Fla. mainland. Also Cuba and Jamaica and from c. Mex. (Ver. to Sin.) s. to Costa Rica.

194. *Dipholis salicifolia* (L.) A. DC., willow bustic. S. Fla. incl. Fla. Keys (n. locally to Martin, Hendry, and Collier Cos.). From Bahamas through West Indies incl. P.R. and V.I. Also from s. Mex. (Yuc. to Ver. and Oax.) s. to Belize and Guatemala.

195. *Dodonaea viscosa* (L.) Jacq., hophbush. Local in s. Fla. incl. Fla. Keys and along coasts n. to c. Fla. A shrubby var. in c. and s. Ariz. Also in Hawaii. Widespread incl. several vars. through tropics of both hemispheres. Bermuda and from Bahamas through West Indies incl. P.R. and V.I. From n. Mex. (B. Cal. Norte and Son. to Tamps.) s. to S. Am. Atlas vol. 3, maps 66-N, 66-SW.

196. *Drypetes diversifolia* Krug & Urban, milkbark. Through Fla. Keys but absent from s. Fla. mainland. Also Bahamas.

197. *Drypetes lateriflora* (Sw.) Krug & Urban, Guiana-plum. Rare and local in s. Fla. incl. Fla. Keys, n. on e. coast to Brevard Co. From Bahamas through Greater Antilles to P.R. Also s. Mex., Belize, Guatemala, and El Salvador.

198. *Eugenia axillaris* (Sw.) Willd., white stopper. C. and s. Fla. incl. Fla. Keys. Bermuda and from Bahamas through West Indies incl. P.R. and V.I. Also var. from se. Mex. (Q. Roo) and Belize to Nicaragua.

199. *Eugenia confusa* DC., redberry stopper. Local in s. Fla. (s. Dade Co.) incl. northernmost Upper Fla. Keys, Bahamas, Greater Antilles incl. P.R., Guadeloupe, Dominica, and Trinidad (?).

200. *Eugenia foetida* Pers., boxleaf stopper. S. Fla. incl. Fla. Keys, n. on e. coast to Cape Canaveral. Also Bahamas and Greater Antilles incl. P.R. and V.I. Recorded from s. Mex. and Guatemala.

201. *Eugenia rhombea* (Berg) Krug & Urban, red stopper. Local in Lower Fla. Keys near Key West and in Upper Fla. Keys, apparently absent from s. Fla. mainland. From Bahamas through Greater Antilles incl. P.R. and V.I. and Lesser Antilles to Guadeloupe.

202. *Exostema caribaeum* (Jacq.) Roem. & Schult., princewood. S. Fla. on several Fla. Keys, both Lower and Upper, but absent from s. Fla. mainland. From Bahamas through West Indies incl. P.R. and V.I. Also from c. Mex. (S.L.P. to Col.) s. to Costa Rica.

203. *Exothea paniculata* (Juss.) Radlk., inkwood. S. Fla. incl. Fla. Keys, n. on e. coast to Volusia Co. Also Bahamas, Greater Antilles incl. P.R., and few of Lesser Antilles to St. Vincent. Also Mex. (S.L.P. to Chis.) and Guatemala.

204. *Ficus aurea* Nutt., Florida strangler fig. C. and s. Fla. incl. Fla. Keys. Also Bahamas, Cuba, Jamaica, Cayman Is., and Hispaniola.

205. *Ficus citrifolia* Mill., shortleaf fig. S. Fla. incl. Fla. Keys, n. locally to Palm Beach and Collier Cos. From Bahamas through Greater Antilles incl. P.R. and V.I. Also from Mex. to Guianas and Paraguay.

206. *Genipa clusiifolia* (Jacq.) Griseb., seven-year-apple. Coasts of S. Fla. incl. Fla. Keys (n. to Broward and Lee Cos.). Also Bermuda, Bahamas, and Cuba.

207. *Guaiaecum sanctum* L., roughbark lignumvitae. S. Fla., rare and local on several Upper Keys and extinct on Key West, and absent from s. Fla. mainland. Bahamas, Cuba, Hispaniola, and P.R. Also s. Mex. (Yuc.), Guatemala, Honduras, Nicaragua and

Costa Rica.

208. *Guapira discolor* (Spreng.) Little, blolly. Coasts of s. Fla. incl. Fla. Keys, n. on e. coast to Cape Canaveral. Also Bermuda, Bahamas, and Greater Antilles incl. P.R., and Grand Cayman Is.

209. *Guettarda elliptica* Sw., elliptic-leaf velvetseed. Local in s. Fla. incl. Fla. Keys, n. to Broward Co. Bahamas, Grand Cayman, Greater Antilles incl. P.R., and St. Thomas. Also s. Mex. (Yuc., Sin., Nay., Tres Marias Is., and Revillagigedo Is.) to Belize, Guatemala, Panama, Venezuela, and Guyana.

210. *Guettarda scabra* (L.) Vent., roughleaf velvetseed. S. Fla. incl. Fla. Keys, n. to Broward Co. From Bahamas through West Indies incl. P.R. and V.I. to Trinidad and Tobago and Margarita (Venezuela).

211. *Gyminda latifolia* (Sw.) Urban, falsebox. Very rare in s. Fla. in Lower Fla. Keys (recorded from 11 keys from Key West e. to Grassy Key), and absent from s. Fla. mainland. From Bahamas through West Indies incl. P.R. and V.I. Also ne. Mex. (Tamps. and Ver.).

212. *Gymnanthes lucida* Sw., oysterwood. S. Fla. incl. Fla. Keys, local in Dade Co. (extinct in Palm Beach Co.). Bahamas, Grand Cayman, Greater Antilles incl. P.R. and V.I., and n. Lesser Antilles to Guadeloupe. Also se. Mex. (Yuc.), Belize, and Guatemala.

213. *Hamelia patens* Jacq., scarletbush. C. and s. Fla. incl. Fla. Keys. Widespread through tropical Am. Bermuda, from Bahamas through West Indies incl. P.R. and V.I. Also from Mex. (Tamps., Ver., Oax., and Yuc. s.) s. to Brazil, Argentina, and Chile.

214. *Hippomane mancinella* L., manchineel. S. Fla. incl. Fla. Keys and shores of s. Dade and s. Monroe Cos. From Bahamas through West Indies incl. P.R. and V.I. Also from s. Mex. (Ver., Yuc., and Oax.) s. on Atlantic Coast to Venezuela and on Pacific Coast to Revillagigedo Is. and to Ecuador incl. Galápagos Is.

215. *Hypelate trifoliata* Sw., hypelate. Very rare and local in s. Fla., incl. Long Pine Key (s. Dade Co.), and Fla. Keys (Key Largo to Big Pine Key). Bahamas, Cayman Is., Greater Antilles incl. P.R., San Martin, and Anguilla.

216. *Ilex krugiana* Loes., tawnyberry holly. Local in S. Fla. (Dade Co.), apparently not on Fla. Keys. Bahamas and Hispaniola.

217. *Jacquinia keyensis* Mez, joewood. S. Fla. incl. Fla. Keys w. to Marquesas Key and Dry Tortugas, n. on mainland to s. Dade Co. and on w. coast to islands of Lee and Charlotte Cos. Bahamas, Cuba, Jamaica, Hispaniola.

218. *Krugiodendron ferreum* (Vahl) Urban, leadwood. S. Fla. incl. Fla. Keys, n. on e. coast to Cape Canaveral. From Bahamas through West Indies incl. P.R. and V.I. Also Mex. (Tamps. and S.L.P. to Yuc.), Belize, Guatemala, and Honduras.

219. *Laguncularia racemosa* (L.) Gaertn. f., white-mangrove. Silt shores of coasts and islands of c. and s. Fla. incl. Fla. Keys w. to Marquesas Key and Dry Tortugas, n. on e. coast to Volusia Co. and on w. coast to Cedar Keys, Levy Co. Also widely distributed on coasts of tropical Am. from Bermuda and Bahamas through West Indies incl. P.R. and V.I. From n. Mex. (Tamps., Son., and B. Cal. Norte) s. on Atlantic Coast to Brazil and on Pacific Coast to Ecuador incl. Galápagos Is. and nw. Peru. Also on coasts of w. Africa.

220. *Licaria triandra* (Sw.) Kosterm., Gulf licaria. Very rare and local, in and near Miami, Dade Co., s. Fla. Greater Antilles incl. P.R. and Martinique.

221. *Lysiloma latisiliquum* (L.) Benth., Bahama lysiloma. S. Fla. incl. Fla. Keys, n. to Broward and Collier Cos. Bahamas, Cuba, and se. Mex. (Yuc.) and Belize.

222. *Manilkara bahamensis* (Baker) Lam & Meeuse, wild-dilly. S. Fla. incl. Fla. Keys, n. to s. Dade Co. and Cape Sable, Monroe Co. Bahamas and Cuba.

223. *Mastichodendron foetidissimum* (Jacq.) Cronq., false-mastic. S. Fla. incl. Fla. Keys, n. on e. coast to Cape Canaveral and on w. coast to Manatee Co. From Bahamas through West Indies incl. P.R. and V.I. Var. in se. Mex. (Yuc. Pen.) and Belize.

224. *Maytenus phyllanthoides* Benth., Florida mayten. Rare on coasts of s. Fla. incl. Fla. Keys, local n. on west coast to Pasco and Levy Cos. Also Mex. (Yuc. to Pue., S.L.P., Son., and B. Cal. Sur) and C. Am.

225. *Metopium toxiferum* (L.) Krug & Urban, Florida poison-tree. S. Fla. incl. Fla. Keys, n. on e. coast to St. Lucie Co. Bahamas, Cuba, Hispaniola, P.R., and Anguilla.

226. *Myrcianthes fragrans* (Sw.) McVaugh, twinberry stopper. S. Fla. (var. on N. Key Largo in Upper Fla. Keys), n. on e. coast to Volusia Co. and on w. coast to Lee Co. and local in Pinellas Co. Bahamas, Greater Antilles incl. P.R. and V.I., and Lesser Antilles to Martinique. Also from e. and s. Mex. (Tamps. to Ver. and Q. Roo) s. to Colombia and Venezuela.

227. *Nectandra coriacea* (Sw.) Griseb., Florida nectandra. S. Fla. incl. Upper Fla. Keys, n. on e. coast to Volusia Co. and on w. coast to s. Collier Co. From Bahamas through West Indies including P.R. and V.I. Also se. Mex. (Yuc. Pen.), Belize, and Guatemala.

228. *Picramnia pentandra* Sw., bitterbush. Very rare in and near Miami, Dade Co., Fla. (reported in error from Fla. Keys). From Bahamas through West Indies incl. P.R. and V.I. Also Colombia and Venezuela.

229. *Piscidia piscipula* (L.) Sarg., Florida fishpoison-tree. Coasts of S. Fla. incl. Fla. Keys, n. on e. coast to Dade Co. and on w. coast to Lee Co. Bahamas, Cuba, Jamaica, and Haiti. Also e. and s. Mex. (Tamps. to Oax., Chis., Yuc., and Q. Roo), Belize, Guatemala, and Honduras (islands).

230. *Pisonia rotundata* Griseb., pisonia. S. Fla., local on Lower Fla. Keys only, not on s. Fla. mainland. Bahamas and Cuba.

231. *Pithecellobium guadalupense* (Pers.) Chapm., Guadeloupe blackbead. Coasts of s. Fla. incl. Fla. Keys w. to Marquesas Key, n. on e. coast to Palm Beach Co. and on w. coast to Lee Co. Bahamas, Cuba, Guadeloupe, and se. Mex. (Yuc.).

232. *Pithecellobium unguis-cati* (L.) Mart., catclaw blackbead. Coasts of s. Fla. incl. Fla. Keys, n. on w. coast to Lee Co. From Bahamas through West Indies incl. P.R. and V.I. Also Mex. (Tamps. to Yuc. and in Sin.), Venezuela, and Guyana.

233. *Prunus myrtifolia* (L.) Urban, West Indies cherry. Rare in s. Fla. (Dade Co.) and reported from Upper Fla. Keys. From Bahamas through West Indies incl. P.R. Also Venezuela to Surinam, Brazil, and Argentina.

234. *Pseudophoenix sargentii* H. Wendl. ex Sarg., buccaneer-palm. Very rare on 3 Upper Fla. Keys, absent from s. Fla. mainland (almost extinct except in cultivation). Bahamas, Cuba, Navassa, Hispaniola, Saona, Mona (extinct?), and Dominica. Also se. Mex. (Yuc. and Q. Roo) and Belize (Ambergris Cay).

235. *Psidium longipes* (Berg) McVaugh, long-stalk stopper. Local in s. Fla. (Dade Co.) incl. Lower Fla. Keys. Also Bahamas

and a var. in n. Lesser Antilles.

236. *Rapanea punctata* (Lam.) Lundell, Florida rapanea. C. and s. Fla. incl. Fla. Keys, n. on e. coast to Volusia Co. and on w. coast to Levy Co. Also Bahamas and Cuba.

237. *Reynosia septentrionalis* Urban, darling-plum. Through Fla. Keys, not on s. Fla. mainland. Bahamas and Cuba.

238. *Rhizophora mangle* L., mangrove. Silt shores of coasts and islands of n. to s. Fla. incl. Fla. Keys w. to Marquesas Key and Dry Tortugas, n. on e. coast to Flagler Co. and on w. coast to Cedar Keys, Levy Co., and at Piney Is., Wakulla Co., local n. and not hardy. Also widely distributed on coasts of tropical Am. from Bermuda and Bahamas through West Indies incl. P.R. and V.I. From n. Mex. (Tamps., Son., and B. Cal. Norte) s. on Atlantic Coast to Brazil and on Pacific Coast to Ecuador incl. Galápagos Is. and nw. Peru. Also on coasts of w. Africa and in Melanesia and Polynesia. Atlas vol. 1, maps 186-N, 186-E.

239. *Roystonea elata* (Bartr.) F. Harper, Florida royalpalm. Rare and local in s. Fla. (Dade, Monroe, and Collier Cos. but not on Fla. Keys). Formerly n. to St. Johns River in c. Fla. but extinct northward except in cultivation. Also Cuba. Introduced other tropical regions incl. Hawaii, in P.R. and V.I.

240. *Sapindus saponaria* L., wingleaf soapberry. S. Fla. incl. Fla. Keys, n. mainly along coasts to Broward, Collier, and Lee Cos., scattered and local n. to n. Fla. Also 2 coastal localities in e. Ga. Range extended n. by cultivation, partly by prehistoric Indians. Widespread in tropical America. From Bahamas through West Indies incl. P.R. and V.I. Also from n. Mex. (Tamps. to Son. and B. Cal. Sur) s. to Brazil, Paraguay, Argentina, Peru, and Ecuador incl. Galápagos Is. Native also in Hawaii and other Pacific Is. Range extended into Old World tropics by cultivation. Atlas vol. 4, map 138.

241. *Savia bahamensis* Britton, maidenbush. Local on Lower Fla. Keys and Key Largo of Upper Fla. Keys, not on s. Fla. mainland. Bahamas, Cuba, and Grand Cayman.

242. *Schaefferia frutescens* Jacq., Florida-boxwood. Rare on Fla. Keys. From Bahamas through West Indies incl. P.R. and V.I. Also s. Mex. (Ver.), Colombia, and Venezuela.

243. *Schoepfia chrysophylloides* (A. Rich.) Planch., graytwig. Rare in s. Fla. incl. Upper Fla. Keys from Long Key n., n. on e. coast to Volusia Co. and on w. coast to Pinellas Co. Also Bahamas, Cuba, Jamaica, and Hispaniola.

244. *Simarouba glauca* DC., paradise-tree. S. Fla., local in Lower and Upper Fla. Keys, n. on e. coast to Cape Canaveral and on w. coast to Collier Co. Bahamas, Cuba, Jamaica, and Hispaniola. Also from s. Mex. (Yuc., Tab., and Oax.) s. to Panama.

245. *Solanum erianthum* D. Don, mullein nightshade. S. Fla. incl. Fla. Keys, n. mostly along e. coast to Volusia Co. and on w. coast to Lee Co., apparently native in Fla. Keys and introduced n. Also extreme s. Tex. Widespread in tropical Am. From Bahamas through West Indies incl. P.R. and V.I. Also from n. Mex. (Tamps.) s. to Peru and Galápagos Is. Naturalized beyond and in Old World tropics from India to China and Australia. Atlas vol. 4, maps 140-N, 140-SE.

246. *Suriana maritima* L., baycedar. Shores of c. and s. Fla. incl. Fla. Keys w. to Marquesas Key and Dry Tortugas, n. on e. coast to s. Brevard Co. and on w. coast to Pinellas Co. Widely distributed on shores of tropical America from Bermuda and Bahamas through West Indies incl. P.R. and V.I. Also Atlantic



Coast from se. Mex. (Yuc.) to Colombia and Brazil. Also in Old World tropics and Pacific is.

247. *Suietenia mahagoni* (L.) Jacq., West Indies mahogany. Rare in extreme s. Fla. incl. Upper Fla. Keys and s. border of mainland (s. Dade and s. Monroe Cos.), extinct northward. Bahamas, Cuba, and Hispaniola. Introduced in Hawaii, P.R. and V.I. Cultivated and naturalized elsewhere in tropical regions. Atlas vol. 1, map 192-E.

248. *Tetrazygia bicolor* (Mill.) Cogn., Florida tetrazygia. Local in s. Fla. (s. Dade Co.) incl. Key Largo. Also Bahamas, Cuba, and Hispaniola.

249. *Thrinax morrisii* H. Wendl., key thatchpalm. Through Florida Keys sw. to Marquesas Key. S. Fla. mainland n. on e. coast to Broward Co. Bahamas, Cuba, Hispaniola, P.R., Anegada, Anguilla, and Barbuda. Reported from se. Mex. (Yuc.) and Belize.

250. *Thrinax radiata* Lodd. ex J. A. & J. H. Schult., Florida thatchpalm. Nearly through Fla. Keys and s. border of s. Fla. mainland (Dade and Monroe Cos.), formerly nw. to Cape Romano, Collier Co. (extinct). Also Bahamas (N. Cat Cay), Cuba, Jamaica, and Hispaniola. Se. Mex. (Yuc.) and Belize.

251. *Trema lamarckiana* (Roem. & Schult.) Blume, West Indies trema. Local in Upper Fla. Keys (Key Largo to Key Biscayne) and adjacent s. Fla. mainland (se. Dade Co.). Bermuda and from Bahamas through West Indies incl. P. R. to St. Vincent.

252. *Trema micrantha* (L.) Blume, Florida trema. S. Fla. incl. Fla. Keys, n. to s. Palm Beach, Hendry, and Collier Cos., n. locally on w. coast to Pinellas Co. Greater Antilles incl. P.R. and V.I. and Lesser Antilles. Also from c. Mex. (Ver. to Sin.) s. to Brazil and Argentina.

253. *Ximenia americana* L., tallowwood. N. to s. Fla. incl. Fla. Keys, mostly near shores. Widely distributed on shores of tropical and subtropical regions and inland in both New and Old Worlds. From Bahamas through West Indies incl. P.R. and St. Thomas. Also from c. Mex. (Ver. and Col., s.) s. to Brazil, Argentina, and Bolivia. Africa, Asia, Australia, and islands of Pacific Ocean.

254. *Zanthoxylum coriaceum* A. Rich., Biscayne prickly-ash. Rare along e. coast of s. Fla. (Dade, Broward, and Palm Beach Cos.) and Key Biscayne. Also Bahamas, Cuba, Grand Cayman, and Hispaniola.

255. *Zanthoxylum fagara* (L.) Sarg., lime prickly-ash. C. and s. Fla. incl. Fla. Keys (n. to Volusia and Citrus Cos.) and se., s., and sw. Tex. (n. near coast to Jackson and Matagorda Cos.). Also West Indies in Bahamas, Cuba, Jamaica, Hispaniola, Martinique, and Trinidad. From n. Mex. (Tamps. to Coah., s. Son., and s. B. Cal. Sur, s.) to Ecuador incl. Galápagos Is. and Peru. Atlas vol. 4, map 164-N, 164-SE.

256. *Zanthoxylum flavum* Vahl, West Indies satinwood. Very rare on Lower Fla. Keys (extinct at Key West and perhaps other keys), not on s. Fla. mainland. Bermuda and from Bahamas through West Indies incl. P.R. to St. Lucia.

## NOTES ON RANGES

Some observations on tree distribution may be noted from the maps of the 262 species in this volume. However, analyses of the ranges are outside the scope of the Atlas. An attempt has been made to record where each species grows naturally now, not to explain or speculate how and why. Many tree species of Florida have extensive ranges beyond the State.

Very few tree species native in Florida have broad east-west distribution nearly across the continental United States and can be classed as transcontinental. Others of more northern range have been noted in previous volumes. Six Florida species are:

*Acer negundo*, boxelder

*Cephalanthus occidentalis*, buttonbush

*Ptelea trifoliata*, common hoptree (variety to Arizona)

*Prunus serotina*, black cherry (varieties to Arizona, Mexico, and Guatemala)

*Rhus glabra*, smooth sumac

*Salix nigra*, black willow

Some tree species of Florida have a great north-south range northward into the Northeastern States or even to Canada. Several of these range southward to the Everglades of South Florida, where they meet tropical species. Red maple, *Acer rubrum*, has the greatest continuous range along the Atlantic coast, from Dade and Monroe Counties in the Everglades north to Maine, Nova Scotia, Cape Breton Island, Gaspé, and beyond in Newfoundland. The north-south extent is more than 23 degrees of latitude, a distance of about 1,600 miles (2,575 km).

American elm, *Ulmus americana*, has an expanse along the coast almost as great, from Lake Okeechobee to Cape Breton Island and Gaspé, about 22 degrees of latitude. The northern limit in Manitoba and Saskatchewan is even farther, more than 26 degrees, about 1,770 miles (2,850 km).

These seven species range from Canada to South Florida:

*Acer rubrum*, red maple

*Cephalanthus occidentalis*, buttonbush (also to Honduras)

*Morus rubra*, red mulberry

*Nyssa sylvatica*, black tupelo, blackgum (also in Mexico)

*Rhus copallina*, shining sumac

*Sambucus canadensis*, American elder

*Ulmus americana*, American elm

Several temperate tree species of Florida reappear in mountains of Mexico or also Central America, sometimes as a different variety. Their discontinuous north-south range may exceed 25 to 30 degrees of latitude. *Ostrya virginiana*, eastern hophornbeam, has an expanse of more than 36 degrees of latitude, about 2,450 miles (3,950 km). Nine examples, some of which were noted in previous volumes, are:

*Carpinus caroliniana*, American hornbeam

*Cephalanthus occidentalis*, buttonbush

*Cornus florida*, flowering dogwood

*Fagus grandifolia*, American beech

*Liquidambar styraciflua*, sweetgum

*Nyssa sylvatica*, black tupelo, blackgum

*Ostrya virginiana*, eastern hophornbeam

*Platanus occidentalis*, sycamore

*Prunus serotina*, black cherry

Many tree species have a broad distribution in the eastern half of the continental United States. Some have the familiar range from New England to Minnesota, south to Texas and Florida. These northern trees generally reach their southern limits in northwestern or northern Florida. Some are often regarded as northern hardwoods, for example, American beech, *Fagus grandifolia*, and white oak, *Quercus alba*. The following list of 33 species ranging from New England or Canada south to northern Florida includes 2 conifers:

*Acer saccharinum*, silver maple

*Alnus serrulata*, hazel alder

*Amelanchier arborea*, downy serviceberry  
*Asimina triloba*, pawpaw  
*Betula nigra*, river birch  
*Carpinus caroliniana*, American hornbeam  
*Carya cordiformis*, bitternut hickory  
*Carya tomentosa*, mockernut hickory  
*Castanea dentata*, American chestnut  
*Chamaecyparis thyoides*, Atlantic white-cedar  
*Cornus alternifolia*, alternate-leaf dogwood  
*Cornus florida*, flowering dogwood  
*Fagus grandifolia*, American beech  
*Fraxinus americana*, white ash  
*Fraxinus pennsylvanica*, green ash  
*Ilex montana*, mountain winterberry  
*Ilex verticillata*, common winterberry  
*Juglans nigra*, black walnut  
*Juniperus virginiana*, eastern redcedar  
*Kalmia latifolia*, mountain-laurel  
*Liriodendron tulipifera*, yellow-poplar  
*Magnolia acuminata*, cucumbertree  
*Ostrya virginiana*, eastern hophornbeam  
*Platanus occidentalis*, sycamore  
*Prunus americana*, American plum  
*Prunus serotina*, black cherry (varieties to Arizona, Mexico, and Guatemala)

*Quercus alba*, white oak  
*Quercus muehlenbergii*, chinkapin oak  
*Quercus velutina*, black oak  
*Rhus glabra*, smooth sumac (also transcontinental)  
*Sassafras albidum*, sassafras  
*Staphylea trifolia*, American bladdernut  
*Ulmus rubra*, slippery elm

Most tropical tree species native in southern Florida have a wide distribution in the West Indies and on the continent. About two-thirds are found in Puerto Rico, and some of these also in the Virgin Islands (Little 1976). Of the 98 species, 67 are described and illustrated in the two-volume reference on trees of Puerto Rico and the Virgin Islands (Little and Wadsworth 1964; Little, Woodbury, and Wadsworth 1974). Among these are 34 of the 60 classed as rare in the southernmost counties of Florida. Two tree species found in both Florida and Puerto Rico are native also in Hawaii: *Sapindus saponaria*, wingleaf soapberry, and *Dodonaea viscosa*, hopbush.

Also, 3 tree species of wider distribution in the Southeastern States reappear in Puerto Rico: *Cyrilla racemiflora*, swamp cyrilla, *Ilex cassine*, dahoon, and *Myrica cerifera*, southern bayberry.

Only about 34 of the 98 tropical species are restricted to Florida and the West Indies. All the others reappear elsewhere on the continent, about 56 in Mexico, 54 in Central America, and 41 in South America. Eight are native also in the Old World tropics or represented there by very closely related species. Many are native northward in northeastern Mexico (Tamaulipas) nearly to the Texas border.

Thirteen of the 98 tropical species are confined to the Florida Keys and absent from the Southern Florida mainland (Little 1976). However, 7 of these occur also in Mexico or southward on the continent.

Several of Florida's tropical tree species are native also in other States. *Sapindus saponaria*, wingleaf soapberry, and *Forestiera segregata*, Florida-privet, continue northward on the Atlantic

Coast to southeastern Georgia. *Avicennia germinans*, black-mangrove, is scattered along the Gulf Coast of southern Mississippi, southern Louisiana, and southeastern Texas. *Dodonaea viscosa*, hopbush, of worldwide distribution, extends as a shrub from Mexico into southern Arizona. These 3 reappear in extreme southern Texas:

*Bumelia celastrina*, saffron-plum  
*Solanum erianthum*, mullein nightshade  
*Zanthoxylum fagara*, lime prickly-ash

## TREES OF THE FLORIDA KEYS

Distribution of trees in the Florida Keys merits special mention. The keys differ from the mainland in their tropical climate with no freezing temperatures. "Flora of the Florida Keys" (Small 1913b) indicates the general range of each species.

The Florida Keys are a long chain of small, flat islands mostly less than 15 feet above sea level. They extend from near the southeast corner of the Florida mainland west-southwest in an arc about 125 miles to Key West (Lat. 24° 36' N). The Marquesas Keys and Dry Tortugas are farther west, the last being coral reefs about 60 miles beyond. The Upper Florida Keys down to Bahia Honda Key are of coral rock known as the Key Largo limestone. The Lower Florida Keys from Big Pine Key to Key West and the Marquesas Keys are of Miami oolitic limestone, the same formation as near Miami. (Limestone outcrops in the Everglades of the mainland are designated also as Everglades Keys.)

The distribution of each tree species within the numerous keys has been mapped so far as known. However, the exact distribution of some species, island by island, has not been available. Certain rare or uncommon species have restricted occurrence on only a portion of the chain.

Areas of natural vegetation in the Florida Keys are decreasing at a rapid rate, because of real estate developments and recreational use. Some tree species, such as those of useful woods, have become scarce. Several have disappeared from certain islands and probably will do so from others.

The earliest detailed plant collections in the Florida Keys were made at Key West. John Loomis Blodgett (1809-53), a physician and druggist who came there in 1838, was the first botanist to explore the Lower Florida Keys. His tree records were reported by Nuttall (1842-49).

Melville (1884) published a list of the plants at Key West. It was based mainly upon observations there in March 1872 but contained records of others. Native trees totaled about 35 species, and introduced trees about 12. *Solanum erianthum* (as *S. verbascifolium*), mullein nightshade, was recorded as native and very common. *Cordia sebestena*, Geiger-tree, was classed as "probably not native." *Cocos nucifera*, coconut, was naturalized and common. Cotton, *Gossypium barbadense*, was listed as a naturalized large shrub.

Big Pine Key (with surrounding keys) has a published plant list by Dickson, Woodbury, and Alexander (1953). The compiler made a collection of the trees there in September 1952, about 45 native species.

Two tree species with valuable woods have become extinct at Key West and vicinity. *Guaicum sanctum*, roughbark lignumvitae, was noted by Blodgett as abundant and by Melville as not common. *Zanthoxylum flavum*, West Indies satinwood, was common there, according to Blodgett, but not observed by Melville.

Wild plants of *Cereus robinii*, key tree-cactus, disappeared from Key West about 1915 but persist at Big Pine Key.

All but 9 of the 98 species of tropical hardwoods shown in this volume on large maps are native south into the Florida Keys. Also, 13 of the more northern tree species on the small maps occur in the keys. Thus, the Florida Keys have about 102 species of native trees.

Only about 13 species of native trees are confined to the Florida Keys and absent from the mainland (Little 1976). However, all reappear in the West Indies. The list follows:

*Acacia choriophylla*, cinnecord

*Acacia macracantha*, long-spine acacia

*Cereus robinii*, key tree-cactus

*Clusia rosea*, Florida clusia

*Cupania glabra*, Florida cupania

*Drypetes diversifolia*, milkbark

*Exostema caribaeum*, princewood

*Guaiacum sanctum*, roughbark lignumvitae

*Gyminda latifolia*, falsebox

*Pisonia rotundata*, pisonia

*Pseudophoenix sargentii*, buccaneer-palm

*Savia bahamensis*, maidenbush

*Zanthoxylum flavum*, West Indies satinwood

Fortunately, small areas of natural vegetation are in preserves. Biscayne National Monument near the northeast end of the island chain contains several keys, including Sands, Elliott, Old Rhodes, and Totten. Everglades National Park embraces numerous small isles in Florida Bay and a ranger station on Key Largo. Lignum Vitae State Park preserves that tree on the key with the same name. National Key Deer Refuge occupies parts of Big Pine Key and adjacent keys.

## RARE AND LOCAL SPECIES

The maps of this Atlas show clearly which species are confined to limited geographical areas. From these trees of local occurrence, lists of rare and endangered species may be compiled. The subject of rare and local trees is being treated in a series of separate reports.

The first report, "Rare and Local Conifers in the United States" (Little 1975), cites northwestern Florida's 2 very rare species of the yew family, Taxaceae, mentioned below. "Rare Tropical Trees of South Florida" (Little 1976), the second report, compiles the distribution of 60 species of rare tropical trees of the 3 southernmost counties.

The Endangered Species Act of 1973 (U.S. Public Law 93-205, approved Dec. 28, 1973) directed the Smithsonian Institution to prepare a list of proposed endangered and threatened plant species. Accordingly, the Secretary (Smithsonian Institution 1975) presented to the Congress on Dec. 15, 1974, its 200-page "Report on Endangered and Threatened Plant Species of the United States."

The Act also provides that the Secretary of the U.S. Department of the Interior must study the Smithsonian Institution's preliminary lists of species and determine whether or not any species is truly threatened or endangered. At this time, no species has officially been so classified by the Secretary. However, a list of proposed endangered status for some 1,700 United States vascular plant taxa has been published (U.S. Department of the Interior, Fish and Wildlife Service 1976). Thus, the proposed threatened and endangered species are tentative or preliminary and will remain so until the Secretary makes a final determination—possibly several years in the future.

Next, a few definitions. A *rare* species has small numbers of individuals throughout its range, which may be restricted or widespread. The term *local* species is used here for a species of relatively small range, such as a small part of a State or a few islands, but which is sufficiently common not to be called rare. A species whose range is limited to a particular named area, usually small, is cited as *endemic*. *Border* or *peripheral* species reach the limit of their natural range a short distance into the United States, where they may be classed also as rare or local. An *extinct* species (recently or possibly extinct) is no longer known to exist after repeated search of the type locality and other known or likely places.

As defined in the Act, "the term 'endangered species' means any species which is in danger of extinction throughout all or a significant portion of its range. . . ." "The term 'threatened species' means any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range." At present, no plant species has been officially classified as endangered or threatened.

Some rare and local tree species are also on the lists of proposed endangered and threatened species compiled by the Smithsonian Institution (1975). However, border or peripheral species generally are excluded by definition. Examples are many from the West Indies also in South Florida. Border species could become extinct in the United States and still be common in a neighboring country.

Fortunately, the preliminary lists for the continental United States contain only about 32 species (also 11 varieties) of trees (Little 1975b). This Atlas volume contains maps of the Florida tree species listed, 5 proposed as endangered and 5 proposed as threatened. However, the number of species of rare trees is somewhat larger.

The taxonomic rank of several rare and local Florida trees is subject to differences of opinion. The same variation may be treated as a distinct species, as a variety, or as an unnamed form. A few weak varieties are not mentioned. Also, the genus hawthorn, *Crataegus*, has been omitted because of taxonomic difficulties, though several local species have been named from northern Florida.

A separate list of rare and endangered Florida plants has been prepared by the Special Committee on Plants, Florida Committee on Rare and Endangered Plants and Animals. This larger list contains some northern species that reach their southern limit in northern Florida. Though rare within this State, these species would not be threatened with extinction. The preliminary list for Florida contains 8 tree species proposed as endangered, 7 as threatened, and 8 as rare. All native palms and several other named tree species are protected by Florida law.

Florida has three geographic centers of local species, or of endemism. One is in northwestern Florida, from the Apalachicola River westward. Another is the sandhill or lake region in the central part. The third is the tropical region of South Florida including the Florida Keys. Tree examples in each center are mentioned below. Species on the lists of proposed endangered and threatened species are indicated.

### Northwestern Florida

Northwestern Florida, the oldest part of the State geologically and the highest in altitude, has several local tree species and many

northern species at their southern limits. Two endangered species of the yew family, Taxaceae, are very rare on the east side of the Apalachicola River and vicinity (Little 1975a). *Taxus floridana*, Florida yew, is limited to 2 counties. *Torreya taxifolia*, Florida torrey, has been found in 3 counties and an adjacent county of Georgia. It is almost extinct in the wild state, having been destroyed by a fungal disease of the stems. Both species are protected within Torreya State Park near Bristol and have been planted in botanical gardens elsewhere.

*Salix floridana*, Florida willow, proposed as endangered, ranges from northwestern Florida to the central part and to central Georgia.

*Magnolia ashei*, Ashe magnolia, proposed as threatened, is known only from 8 counties of northwestern Florida. It is closely related to *M. macrophylla*, bigleaf magnolia.

Three other rare tree species proposed as threatened are found in this region but have a broader distribution into nearby States. *Pinckneya pubens*, pinckneya, extends into Georgia and the edge of South Carolina. *Leitneria floridana*, corkwood, is found in 17 counties of 5 States. *Ilex amelanchier*, sarvis holly, a shrub or rarely small tree, is very rare in the Coastal Plain of 7 States.

*Crataegus lacrimata* Small, Pensacola hawthorn, apparently is a distinct local species known only from northwestern Florida (Walton to Escambia Cos.). Another, *C. pulcherrima* Ashe, beautiful hawthorn, ranges also into southwestern Georgia and southern Alabama.

### Central Florida

One of the best known endemic trees of the sandhill or lake region of central Florida is *Illicium parviflorum*, yellow anise-tree. It is limited to 5 counties and has been proposed as threatened.

*Carya floridana*, scrub hickory, is a common species through central Florida. *Pinus clausa*, sand pine, is common and dominant through the central part and is present also in the northwestern part and an Alabama county.

Two local varieties proposed as threatened are: *Ilex opaca* var. *arenicola* (Ashe), dune holly, and *Persea borbonia* var. *humilis* (Nash) Kopp, silkbay.

### Southern Florida

The tropical region of South Florida including the Florida Keys has the greatest collection of rare native trees anywhere in the continental United States. The report "Rare Tropical Trees of South Florida" (Little 1976) classes 60 species as rare or local. Those species are confined to the 3 southernmost counties, Dade, Monroe, and Collier, or slightly beyond. That report contains additional information including distribution and occurrence within parks and other preserves and in the Florida Keys.

Apparently South Florida has no local or endemic tree species. All tree species named as new from there have been found also in the West Indies, such as Bahamas and Cuba or beyond or southward to the continent, or have been reduced to synonyms or varieties. However, all these species at the northern edge of their natural ranges here would be classed as border or peripheral. Thus, they would not be under the Endangered Species Act.

*Roystonea elata*, Florida royalpalm, has been proposed as endangered and as a palm is protected by State law. However, *Roystonea regia* (H.B.K.) O. F. Cook, Cuban royalpalm, which is widespread in Cuba, apparently is the same.

Four endemic tree varieties have been distinguished in South Florida. *Pinus elliottii* Engelm. var. *densa* Little & Dorman, South Florida slash pine, is common and widespread. The others, noted below, are rare.

*Cereus robinii* (Lem.) L. Benson, key tree-cactus, is represented in the Florida Keys by 2 varieties originally named as species. Both have been proposed as endangered and listed as commercially exploited species privately collected. The typical variety, var. *robinii*, key tree-cactus (typical), is known from the Lower Florida Keys and Cuba. Var. *deeringii* (Small) L. Benson, Deering tree-cactus, is endemic to the Upper Florida Keys and is rare and possibly almost extinct.

*Myrcianthes fragrans* (Sw.) McVaugh var. *simpsonii* (Small) R. W. Long, Simpson stopper, is rare and local on the mainland in Dade County and has been proposed as threatened. The typical variety has a wider range in South Florida and tropical America and is not rare. Protected by State law (as *Eugenia simpsonii*).

*Forestiera segregata* (Jacq.) Krug & Urban var. *pinetorum* (Small) M. C. Johnston, a shrubby variety of South Florida, has been proposed as endangered. The typical variety, Florida-privet, is a small tree which ranges into southeastern Georgia and the West Indies.

## APPLICATIONS OF THE MAPS

Several applications of these maps of Florida trees may be repeated from previous volumes, though most uses are obvious. First, the maps show where each tree species grows wild and can be found for study for any purposes; also, where plantations or trees from locally collected seed should be successful.

To specialists, the maps may reveal errors and suggest corrections, and also likely localities where further field work is needed for revision and where range extensions and State records may be sought. The natural ranges are preserved for the historical record, before the forests are destroyed or partly replaced by plantations of improved varieties and hybrids. The maps have economic value, suggesting possible sources of wood and other products in addition to the detailed information on timber volumes provided by forest surveys.

The transparent overlays (Volume 1) and maps together summarize graphically the average and extreme conditions of the environment (temperature, precipitation, latitude, altitude, etc.) of each species. They provide the basis for correlation studies of distribution of a species and the environment, including limiting factors. Also, these maps may indicate local climates to which geographical or local races may be adapted.

The maps are of special importance in the collection of seed. They show first the geographic areas and localities where seed can be collected from wild trees. They suggest the possible occurrence of geographic races and seed sources, particularly for tree improvement programs, including hybridization tests and for testing or introduction beyond the native range, such as foreign countries with similar climates.

Maps can be helpful in identifying wild trees by indicating the presence or absence of a species in a particular area. Finally, the maps serve as background material for such studies as classification, evolution, paleobotany, and genetics, and for the distribution of associated animals and plants, for example, insects and parasitic fungi.

## SUMMARY

"Volume 5. Florida" is the fifth volume of an Atlas showing the natural distribution or range of the native tree species of the continental United States. Florida merits a separate volume because it has more native tree species than any other State (except Hawaii), and because it has a large number of tropical species found in no other State.

The native trees of Florida (excluding hawthorn, *Crataegus*) mapped in this volume total 262 species. Florida maps of 164 species are reproduced from portions of maps in Volumes 1 and 4. These include 13 of conifers and 151 of temperate hardwoods. Large maps of 98 species of tropical hardwoods of South Florida are added. Ten listed species of hawthorn (*Crataegus*) increase the State total to about 272.

The Florida maps have been compiled from various sources, following the procedure reviewed in previous volumes. These include publications, herbarium specimens, field work, and review by local specialists.

Species maps follow the general plan of earlier volumes. The scale of the Florida base map of the maps repeated from Volumes 1 and 4 is the same—1:10,000,000. The 98 new maps of tropical hardwoods have the scale roughly 1:4,000,000. Natural geographic distribution of each species is shown as a brown-shaded pattern of fine dots on the black-and-white base map. Outlying stations are plotted by large or small dots.

Order of maps within the 3 lists is alphabetical by scientific name. Scientific and common names follow the Forest Service Check List (1953), except for minor revision on nomenclature.

Also, the range of each species, both within Florida and beyond, is summarized in text. References to any maps in other Atlas volumes are added.

Notes on ranges are included. Many tree species of Florida have extensive ranges beyond. Six have broad east-west distribution nearly across the continental United States, while 7 range from Canada to South Florida. Nine temperate tree species of Florida reappear in the mountains of Mexico or also in Central America. Many species are widespread in the eastern half of the continental United States and generally reach their southern limits in northwestern or northern Florida. Most tropical tree species native in southern Florida are present also in the West Indies and southward on the continent. Of the 98 species, 67 are found in Puerto Rico.

Rare and local species are listed. The tropical region of South Florida including the Florida Keys has the greatest collection of rare native trees anywhere in the continental United States, 60 species classed as rare or local. Apparently South Florida has no local or endemic tree species, but 4 endemic tree varieties have been distinguished. However, all these species at the northern edge of their natural ranges would be classed as border or peripheral.

## STATISTICAL SUMMARY OF THE ATLAS

"Atlas of United States Trees" in 5 volumes has compiled maps showing the natural range of the native tree species of the continental United States except hawthorns (*Crataegus*) in the eastern half. A statistical summary with numbers of species follows.

"Volume 1, Conifers and Important Hardwoods" has 201 species, including 94 of conifers and 107 of hardwoods (also 2 shrub species of conifers). A map of North America is added for 67 spe-

cies (also 2 shrub species of conifers). Also, 27 species (and 1 shrub species) have maps for both the Eastern and Western United States. There are 4 base maps and 9 transparent overlays. Total, 313 maps (all black and white).

"Volume 2, Alaska Trees and Common Shrubs" has 38 tree species, including 6 shrub species of willow (*Salix*) rarely reaching tree size (also 44 more of common shrubs, making 82 species maps in color). Also 23 general maps (8 in color). Total, 105 maps. All Alaska tree species except 7 shrub species rarely reaching tree size are also in another volume.

"Volume 3, Minor Western Hardwoods" has 210 species. A map of North America is added for 62 species (including 2 of Alaska not in the contiguous United States). Also, 15 species have both northwestern and southwestern maps. There are 4 base maps. Total, 289 maps (all in color except base maps).

"Volume 4, Minor Eastern Hardwoods" has 166 species (including 19 also in Volume 3). A map of North America is added for 42 species (including 12 also in Volume 3). Also, 18 species have both northeastern and southeastern maps. There are 4 base maps. Total, 230 maps (all in color except base maps).

"Volume 5, Florida" has 262 species on 126 pages. There are large maps of this State for 98 species of tropical hardwoods confined mostly to the southern part (6 also in other States). This volume repeats the Florida portions (a few slightly revised) of 170 species from Volumes 1, 3, and 4, (mostly 6 to a page). Also, there are 6 general maps. Total, 265 maps (all in color except 4 general maps).

Together, the 5 volumes contain 1,205 maps, or 1,069 pages of maps, including 50 base and general maps and 173 showing distribution in North America. The number of native tree species of the continental United States mapped in all volumes is 655, after subtraction for duplications. Charted also are 2 shrub species of conifers and the Alaska ranges of 41 other shrub species.

"Volume 6, Supplement" will have small maps of hawthorns (*Crataegus*). Occurrence merely by State will be shown for 35 species (10 in Florida).

Thus, as defined and mapped here, the number of tree species native in the continental United States is about 683 (when *Crataegus*, hawthorn is added). This number includes some shrub species rarely attaining tree size and often omitted from tree lists. Also counted are 98 species of tropical hardwoods confined mostly to southern Florida and native in no other State. Native conifers total 94 tree species (also 2 shrub species), all in Volume 1.

Mapped with the hardwoods in Volumes 1, 3, 4, and 5 are 22 species of monocotyledons reaching tree size. The palm family, Palmae, has 11 native tree species of palms (1 southwestern and 10 southeastern). *Yuccas*, genus *Yucca*, of tree size total 11 (9 southwestern and 2 southeastern).

All the maps are the same scale, 1:10,000,000, except for the 98 large maps of Florida in this volume. Thus, the maps may be compared readily. The 9 overlays on geography, climate, and forest types in Volume 1 can be adapted to the others. Even the maps of Alaska have the same scale.

Volumes 2, 4, and 5 have species ranges summarized in text for reference. Revised ranges of the remaining species will be in Volume 6 and the forthcoming Forest Service Check list.

Maps may be located by the indexes of scientific names and common names and by the list under Contents in each volume. Volume 5 has references to any maps of the same species in other volumes. Also Volume 6 will have an index to all maps.

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## **MAPS**

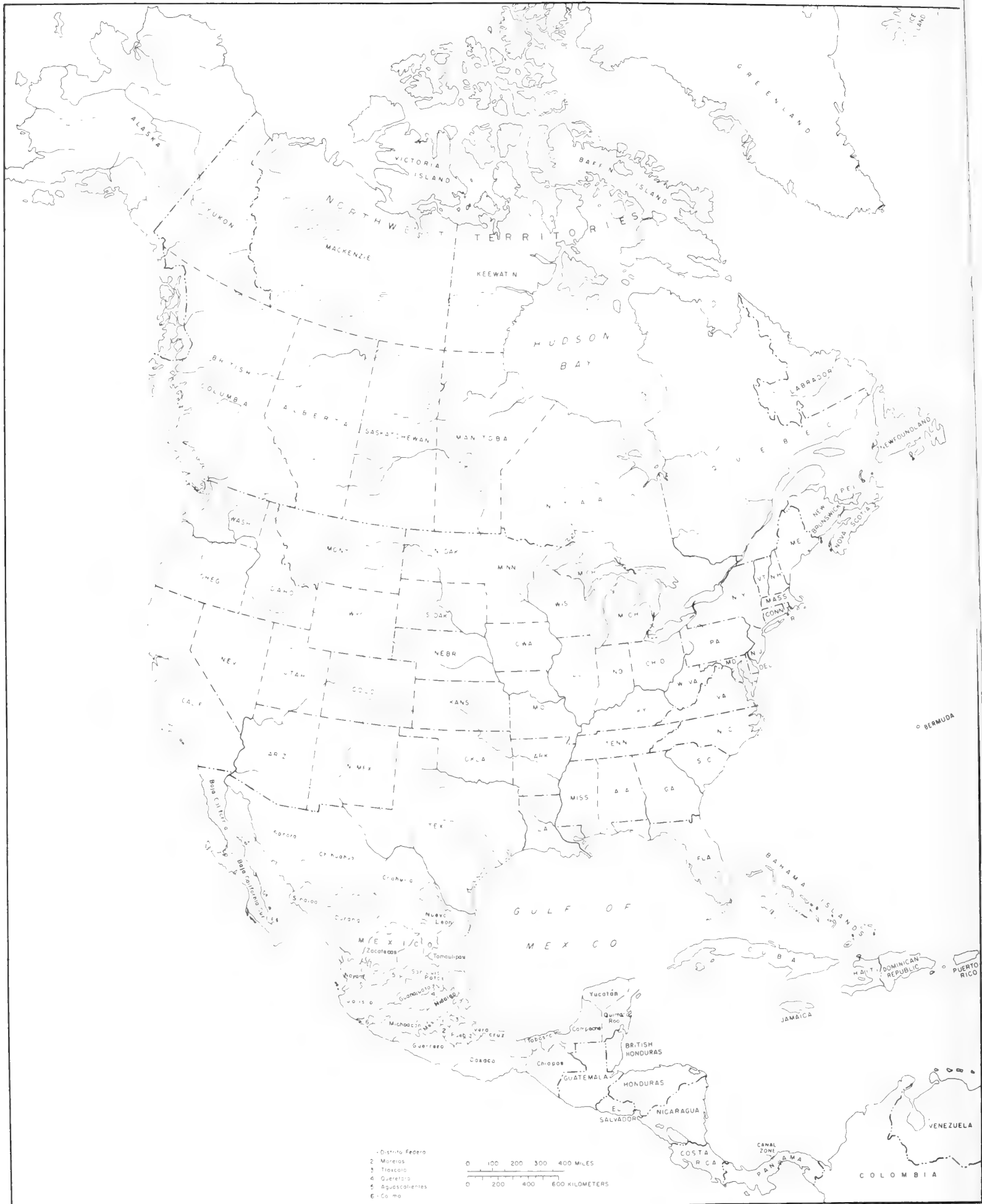
### **General Maps 1–6**

### **Species Maps 1–256**

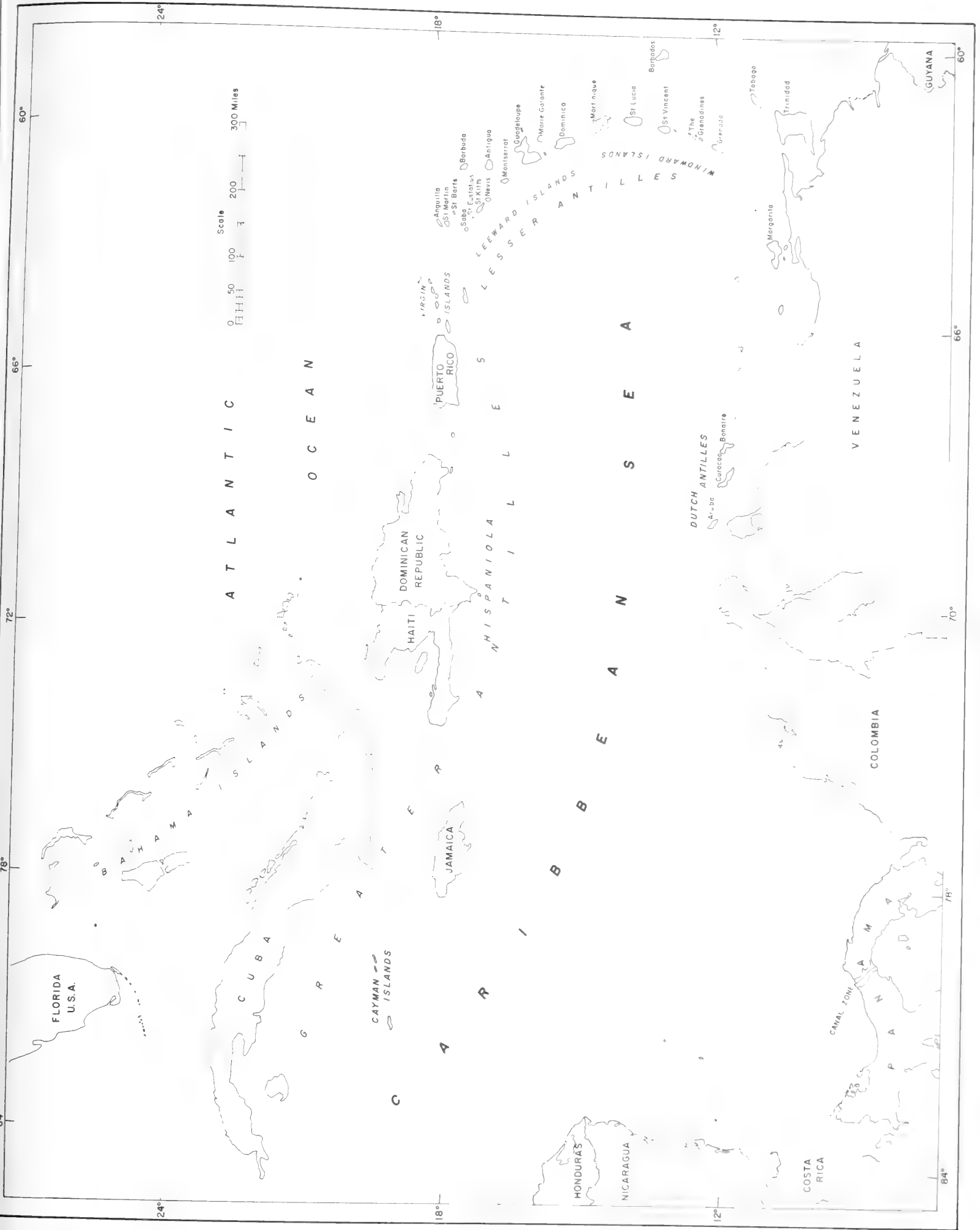
*Conifers, Maps 1–13*

*Temperate Hardwoods, Maps 14–158.6*

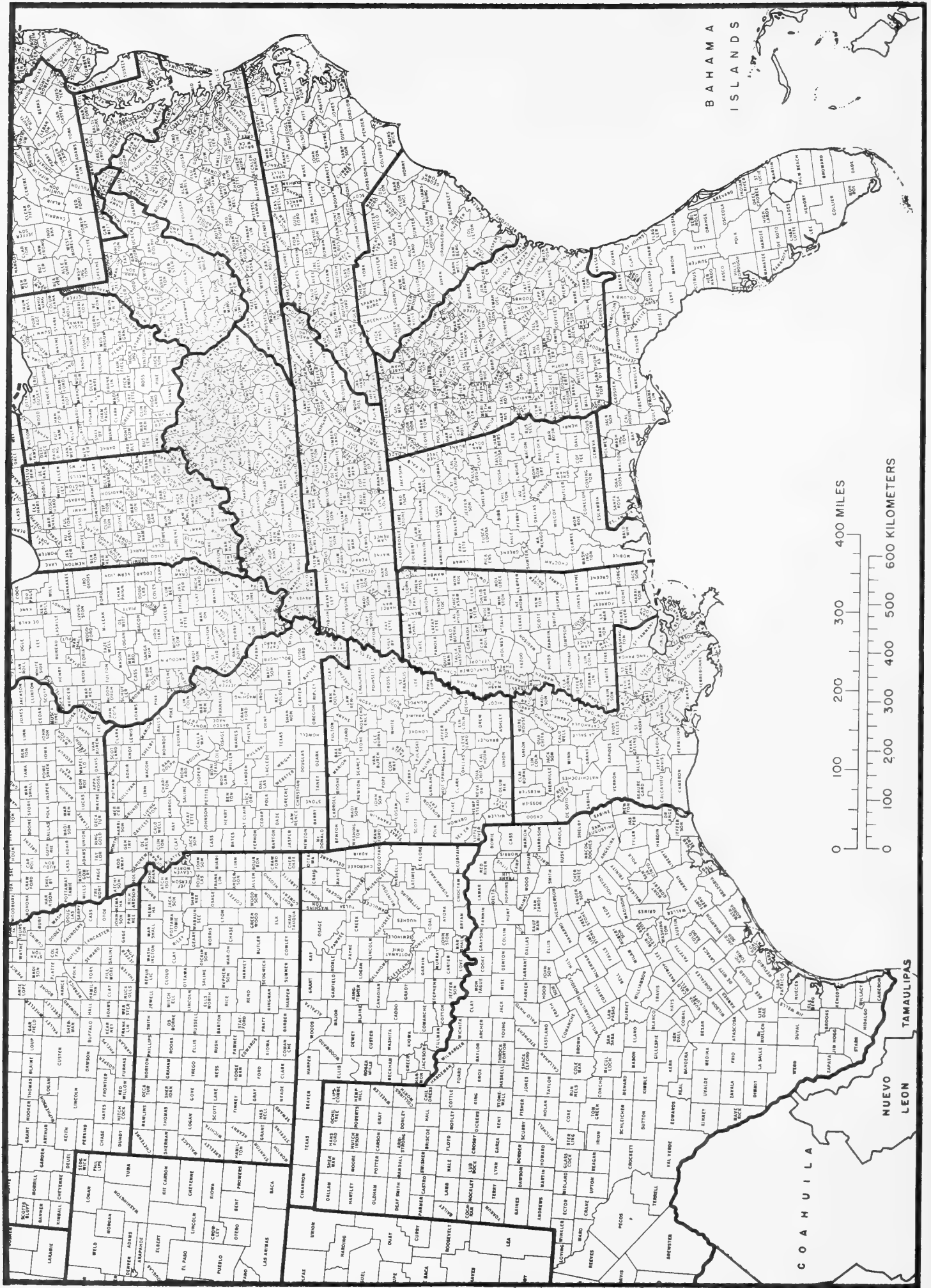
*Tropical Hardwoods, Maps 159–256*



General Map 1.—North America. Base map with names of States of the United States, Provinces and other subdivisions of Canada, States of Mexico, and names of additional countries.



General Map 2.—West Indies. Southern Florida with reference to the principal islands.



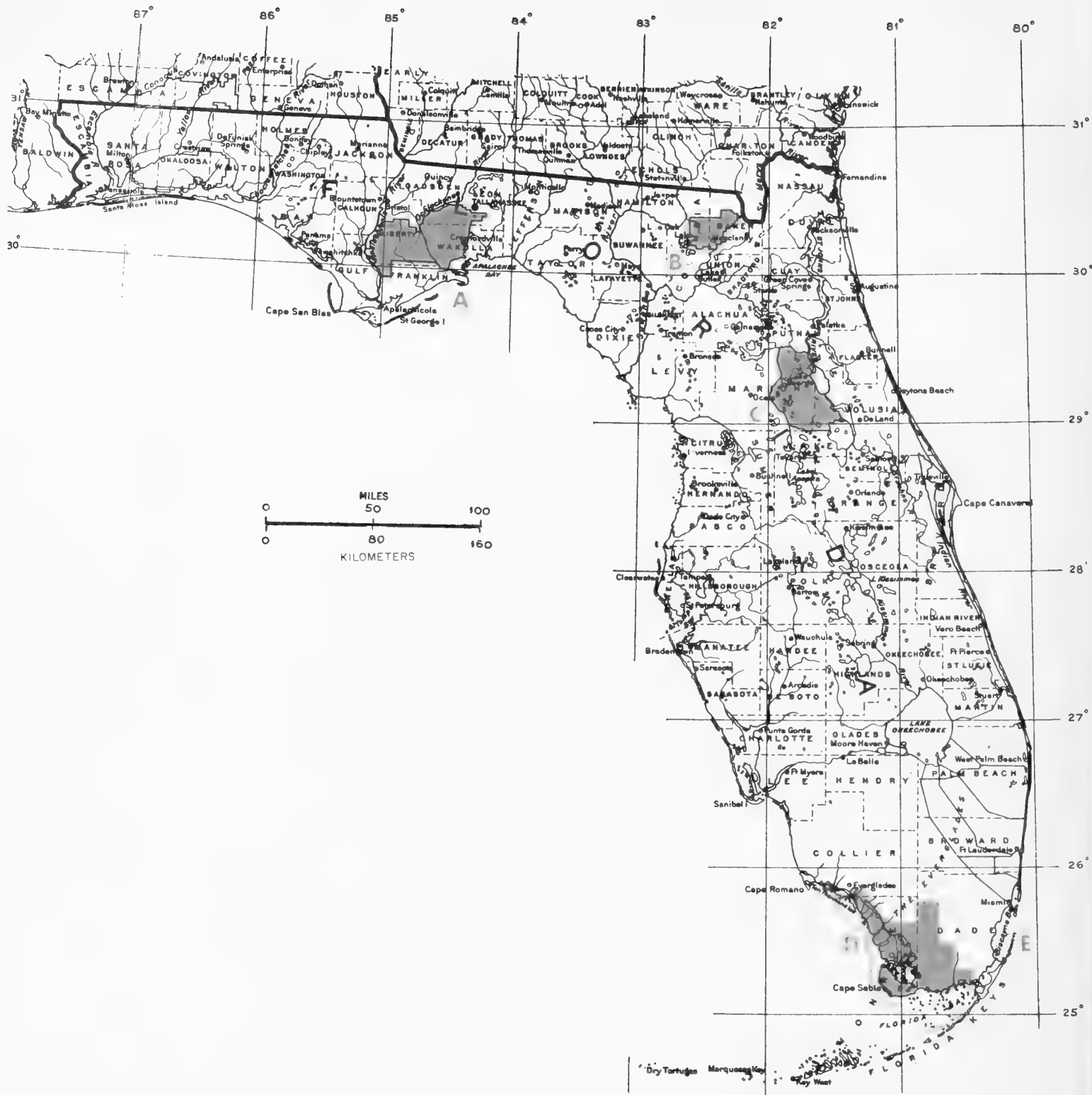
BAHAMA  
ISLANDS



General Map 3.—Southeastern United States (contiguous). Base map with names of counties.



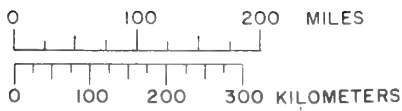
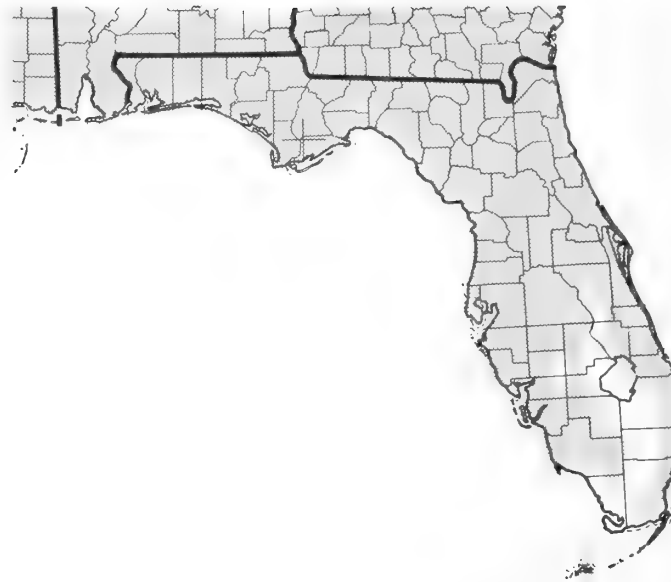
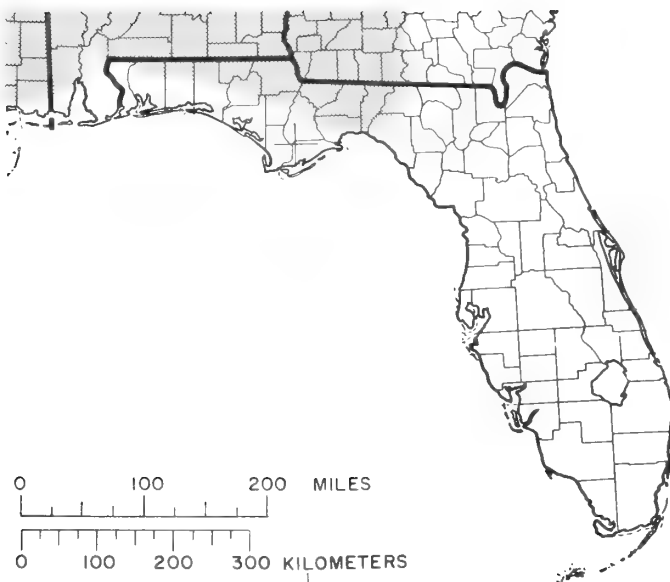
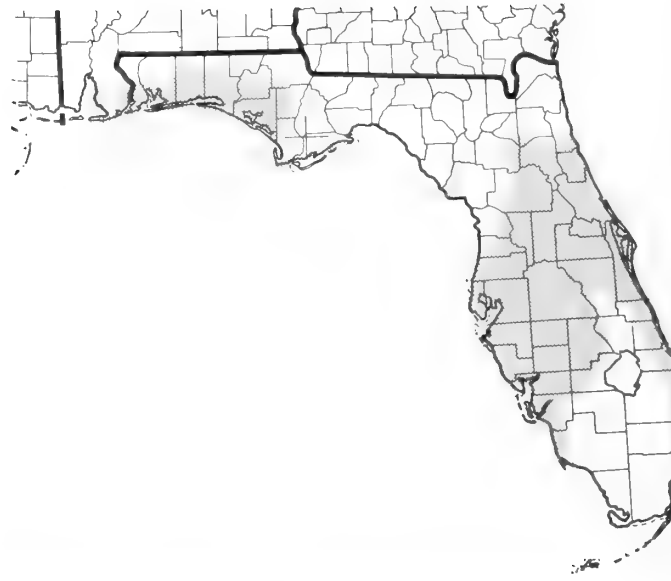
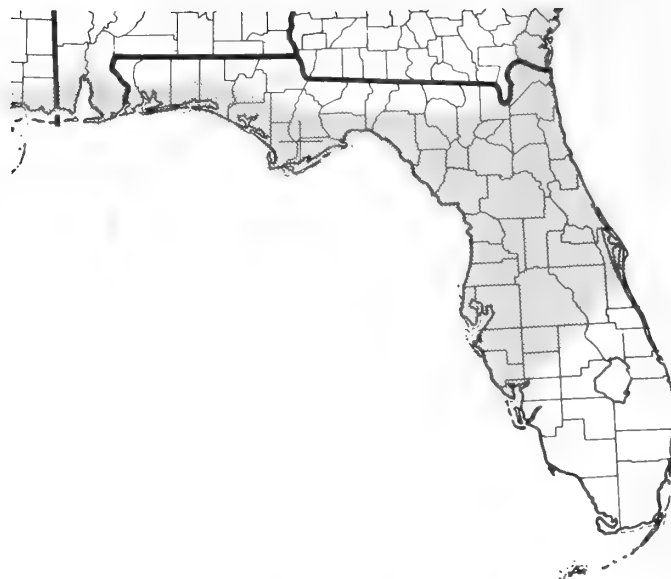
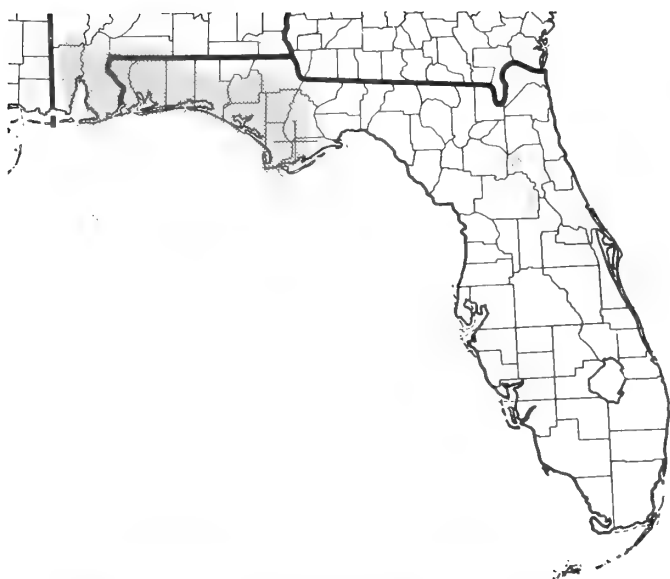
General Map 4.—Florida, with names of counties, county seats, and physical features.



General Map 5.—Florida, showing Apalachicola (A), Osceola (B), and Ocala (C) National Forests, Everglades National Park (D), and Biscayne National Monument (E).

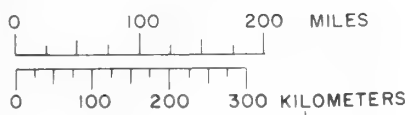
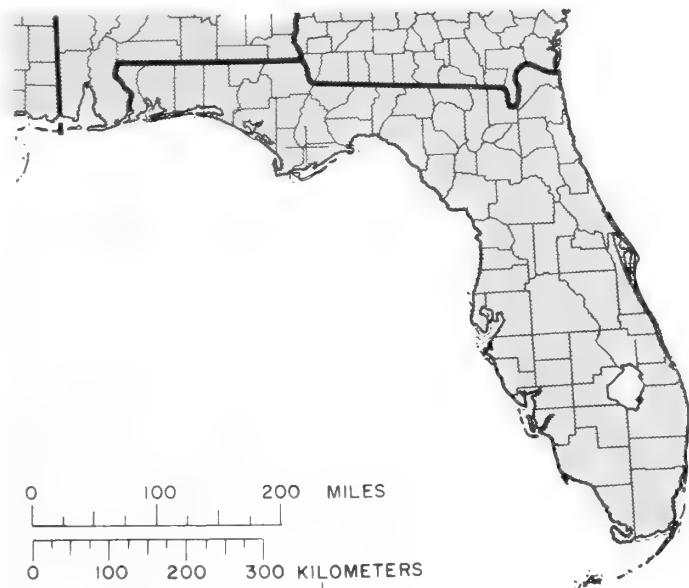
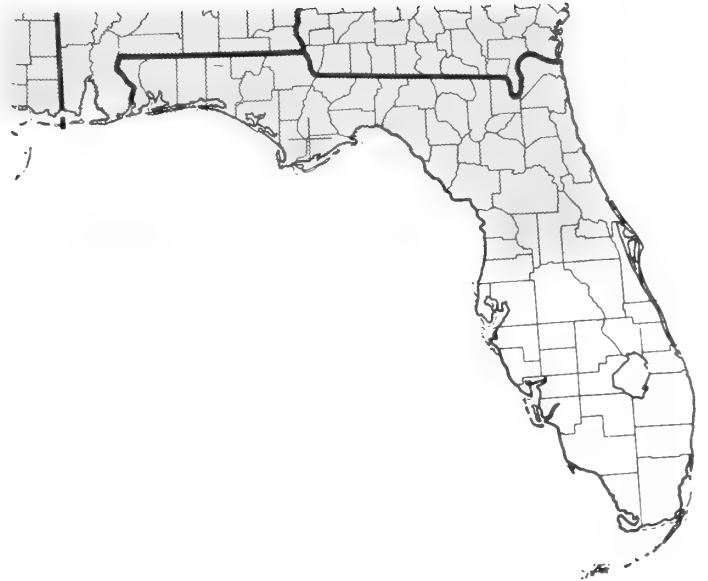
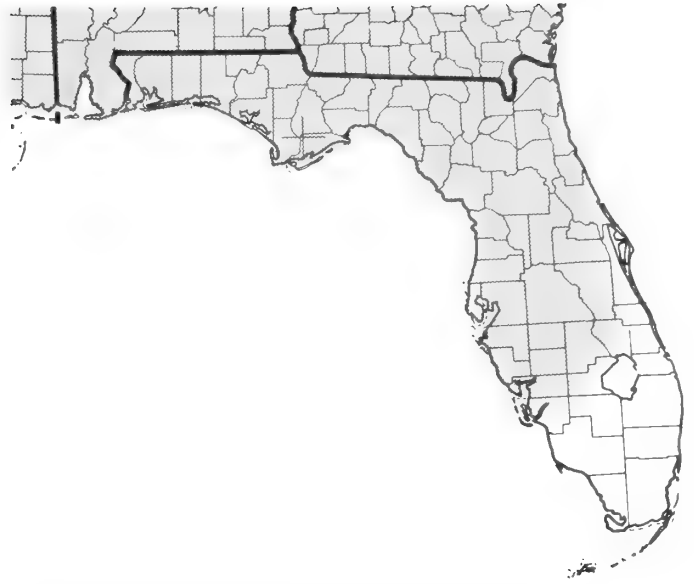
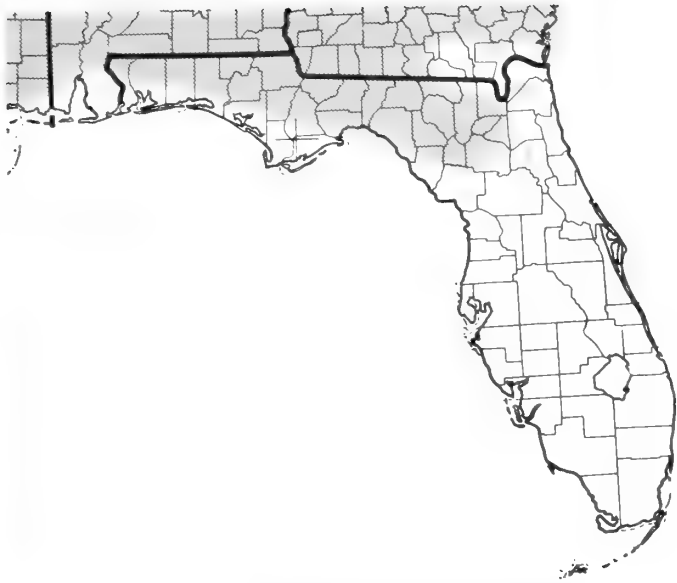


General Map 6.—Florida, Plant Hardiness Zones. Explanation on page 5.

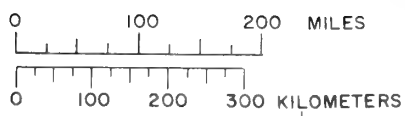
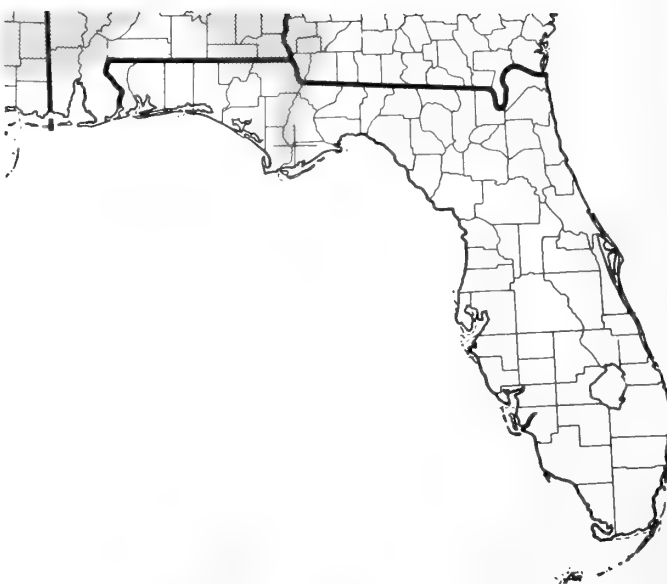
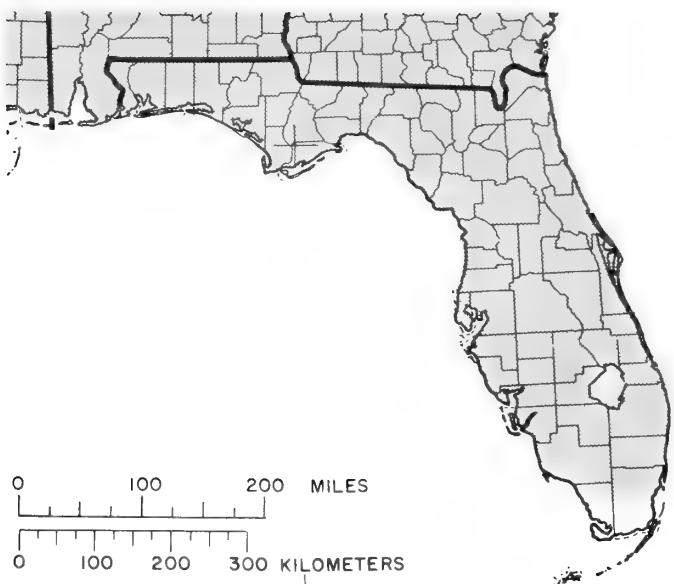
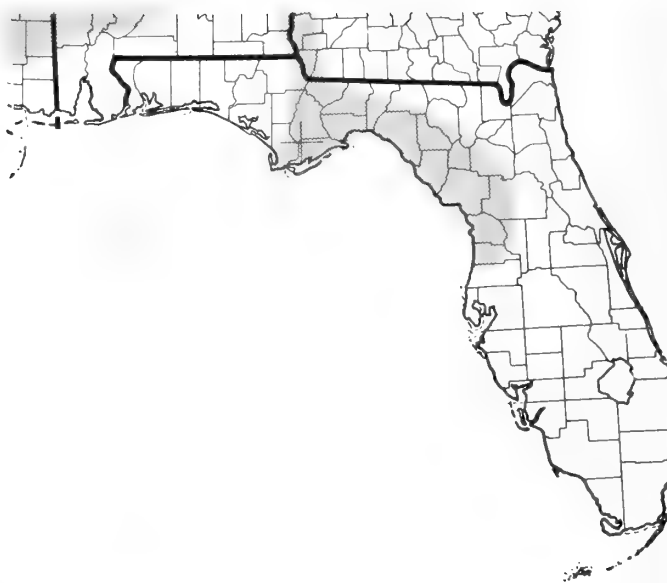
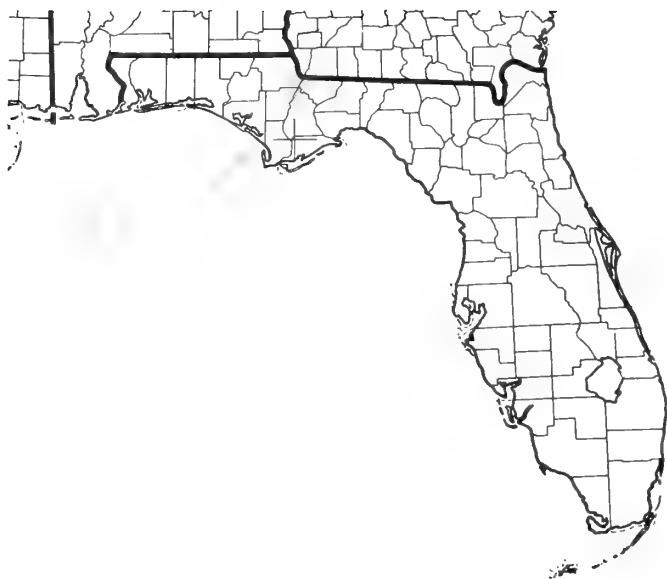


Map 1.—*Chamaecyparis thyoides* (L.) B.S.P., Atlantic white-cedar. Map 2.—*Juniperus silicicola* (Small) Bailey, southern redcedar. Map 3.—*Juniperus virginiana* L., eastern redcedar. Map 4.—*Pinus clausa* (Chapm.) Vasey, sand pine. Map 5.—*Pinus echinata* Mill., shortleaf pine. Map 6.—*Pinus elliottii* Engelm., slash pine.

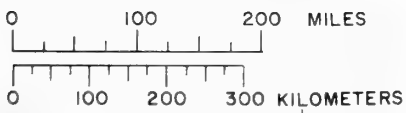
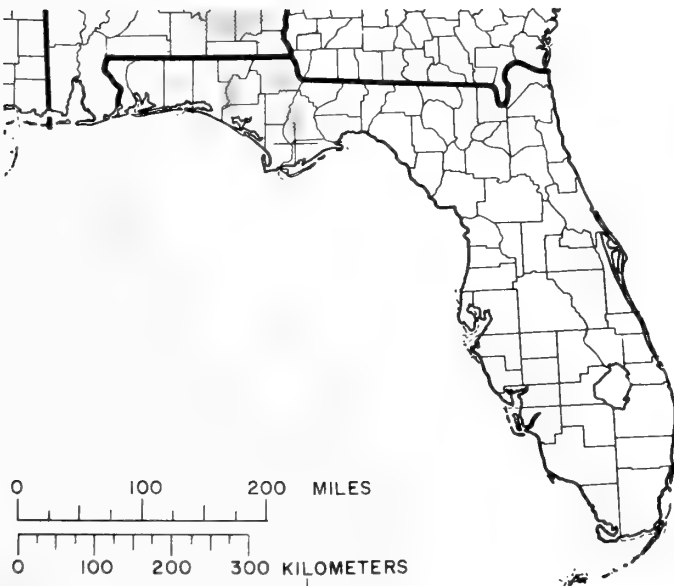
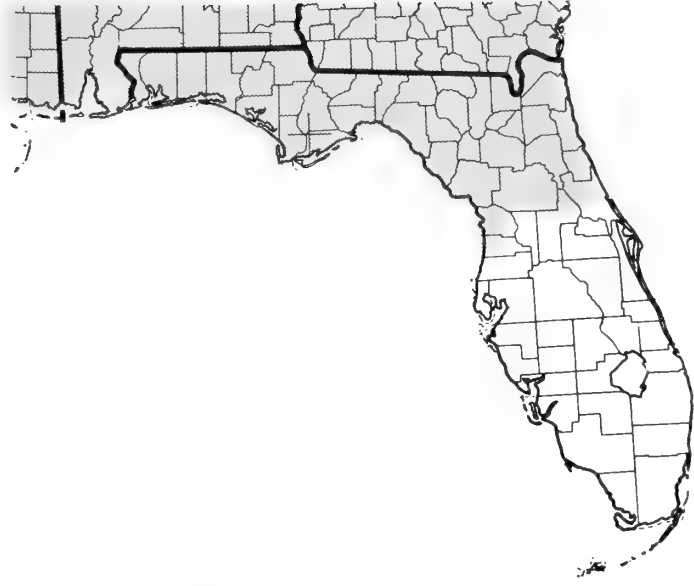
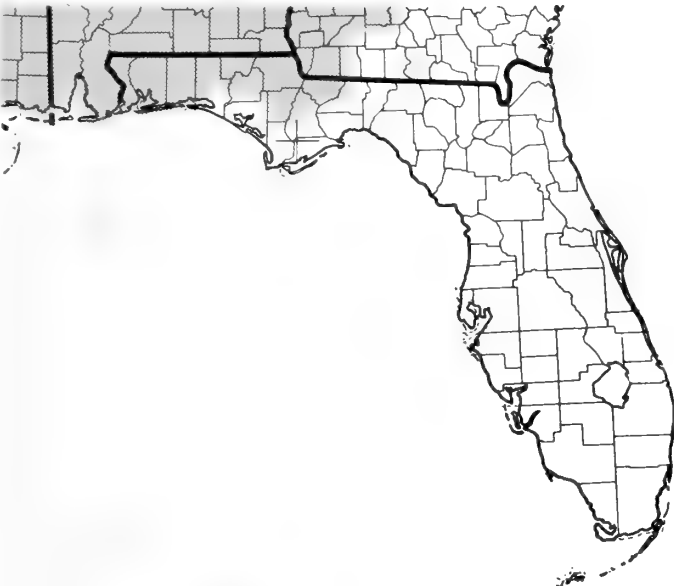
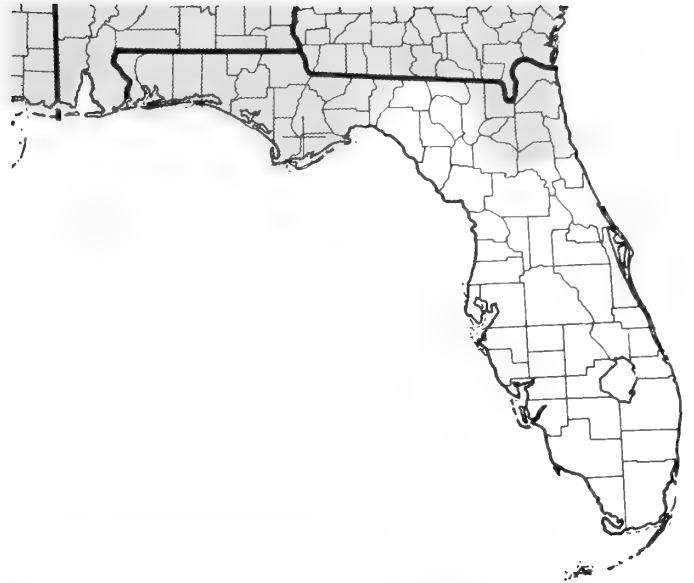
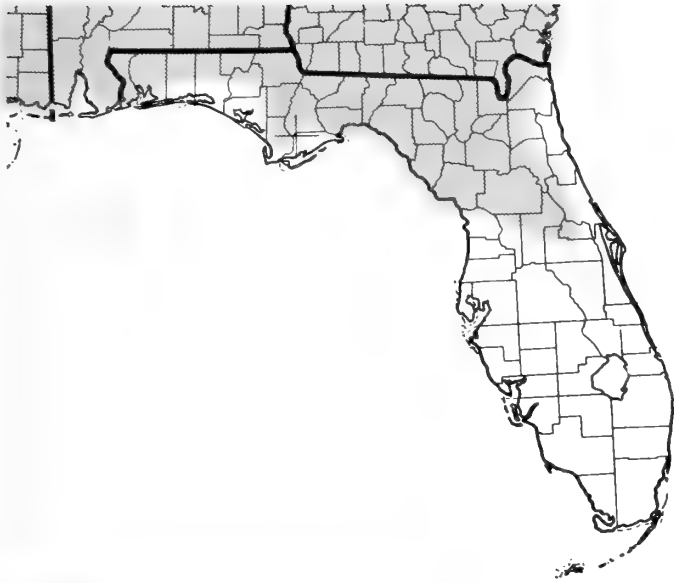




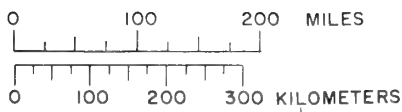
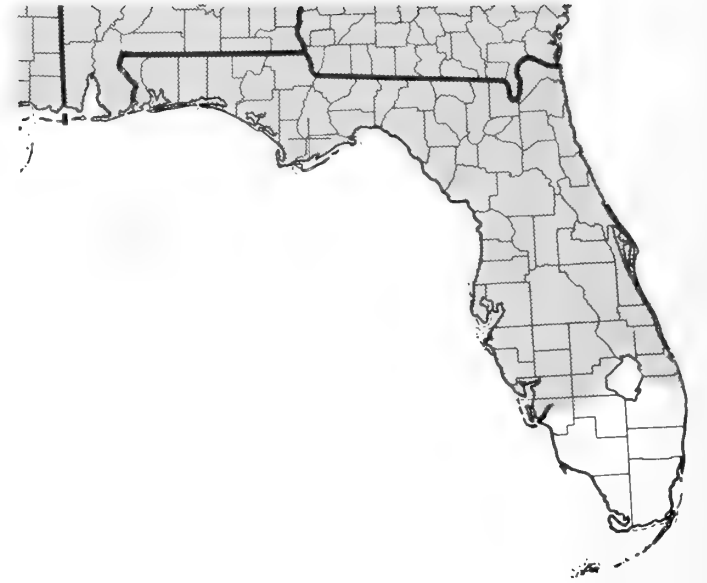
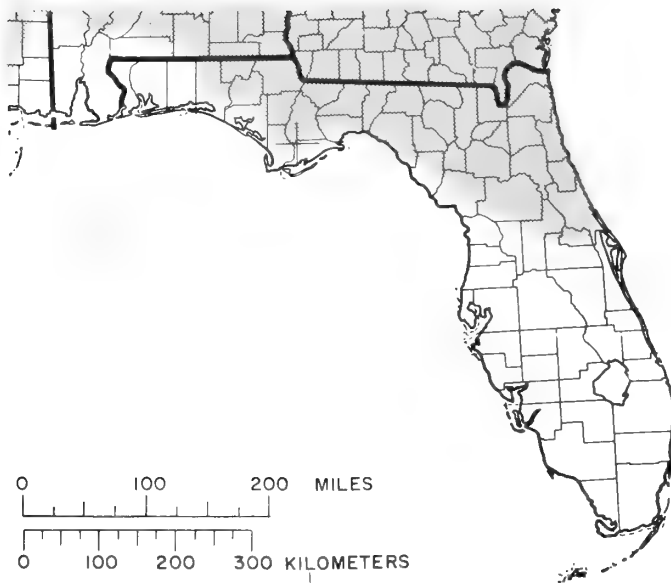
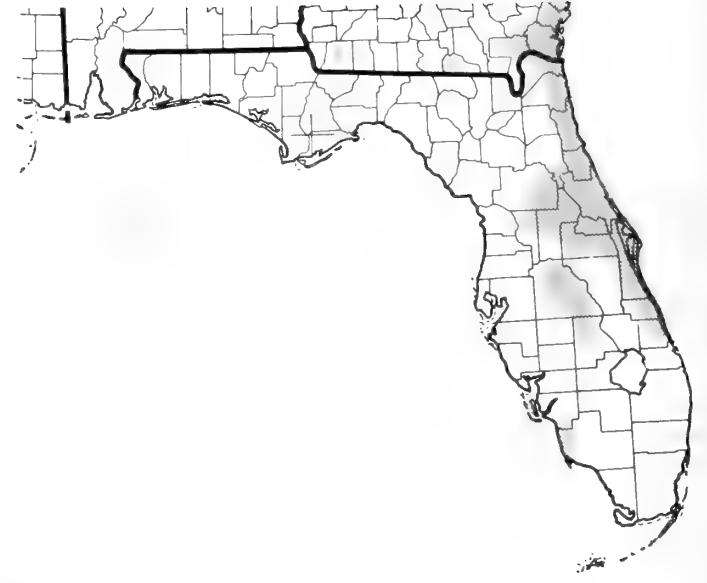
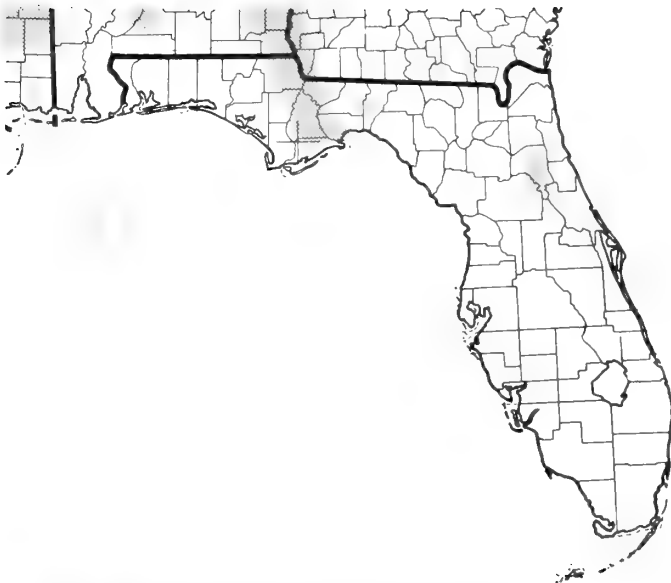
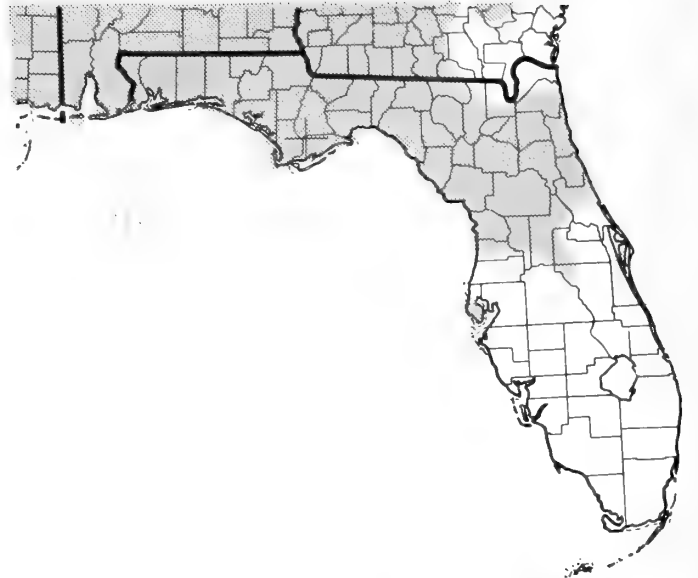
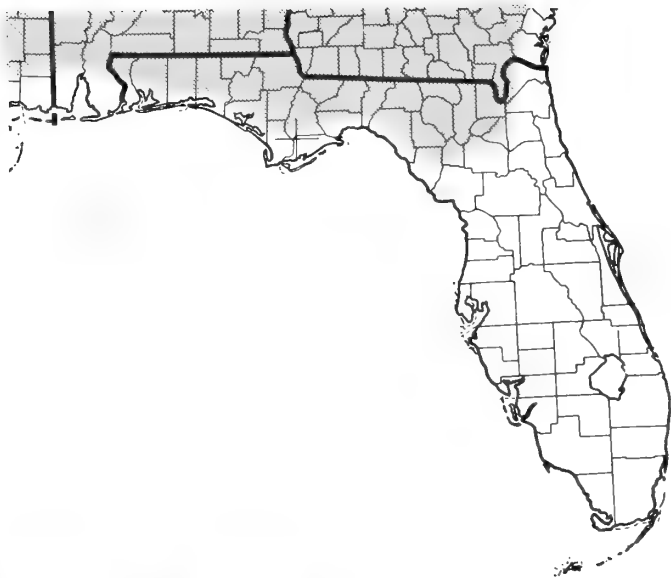
Map 7.—*Pinus glabra* Walt., spruce pine. Map 8.—*Pinus palustris* Mill., longleaf pine. Map 9.—*Pinus serotina* Michx., pond pine. Map 10.—*Pinus taeda* L., loblolly pine. Map 11.—*Taxodium distichum* (L.) Rich., baldcypress. Map 12.—*Taxus floridana* Nutt., Florida yew.



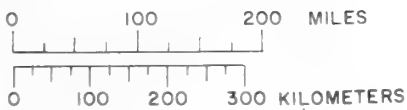
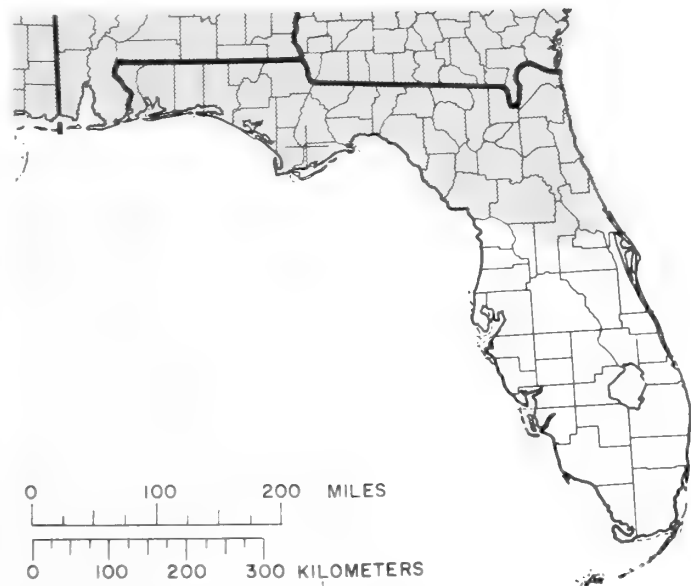
Map 13.—*Torreya taxifolia* Arn., Florida torreyia. Map 14.—*Acer barbatum* Michx., Florida maple. Map 15.—*Acer leucoderme* Small, chalk maple. Map 16.—*Acer negundo* L., boxelder. Map 17.—*Acer rubrum* L., red maple. Map 18.—*Acer saccharinum* L., silver maple.



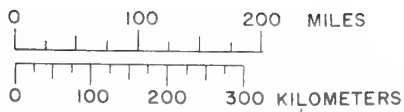
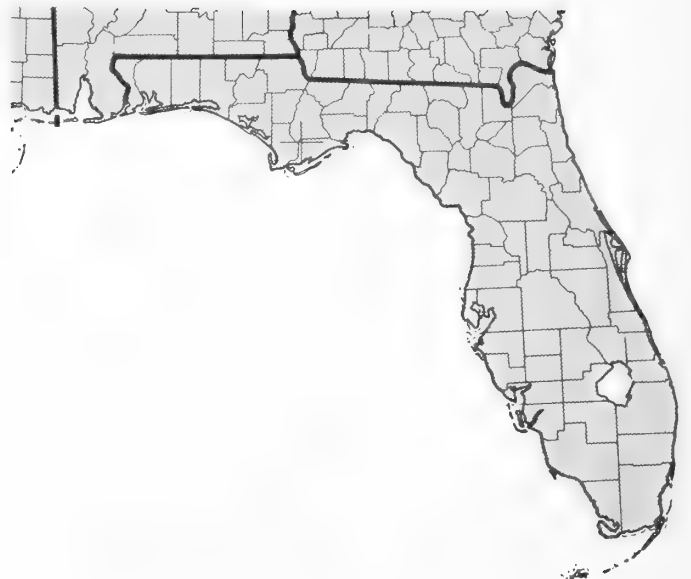
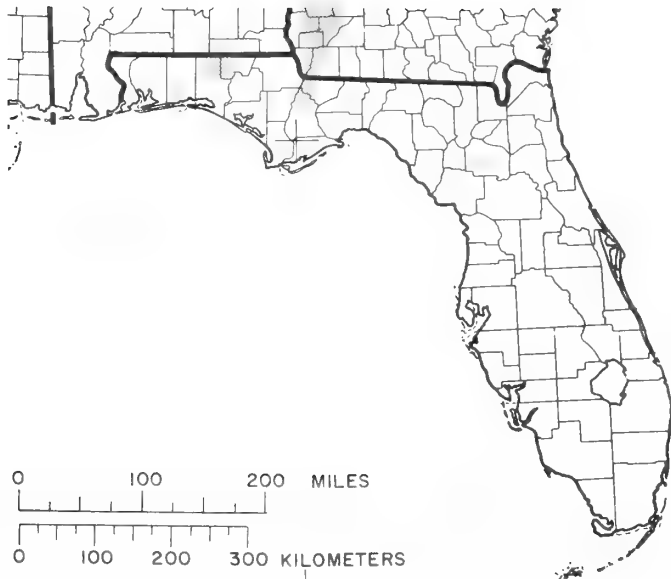
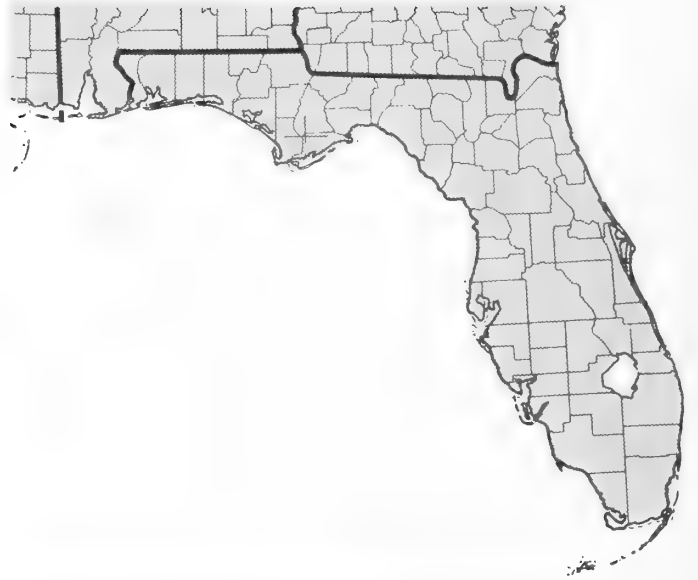
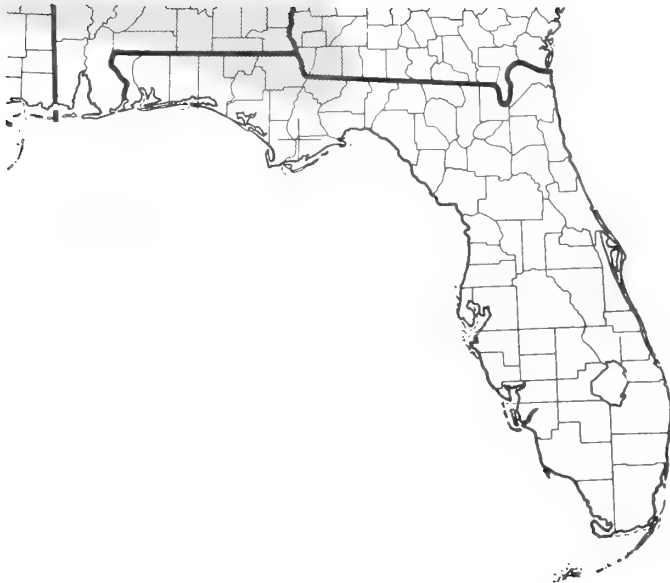
Map 19.—*Aesculus pavia* L., red buckeye. Map 20.—*Alnus serrulata* (Ait.) Willd., hazel alder. Map 21.—*Amelanchier arborea* (Michx. f.) Fern., downy serviceberry. Map 22.—*Aralia spinosa* L., devils-walkingstick. Map 23.—*Asimina triloba* (L.) Dunal, pawpaw. Map 24.—*Baccharis halimifolia* L., eastern baccharis.



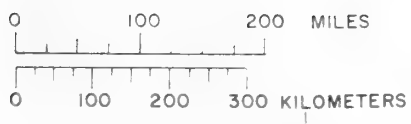
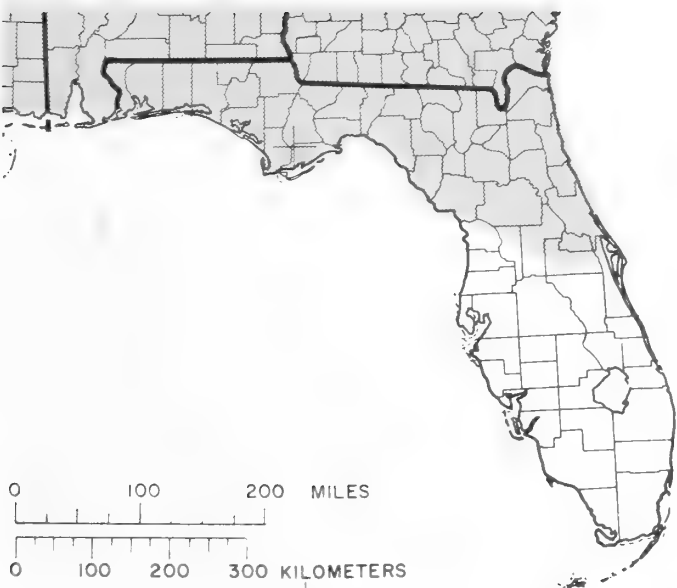
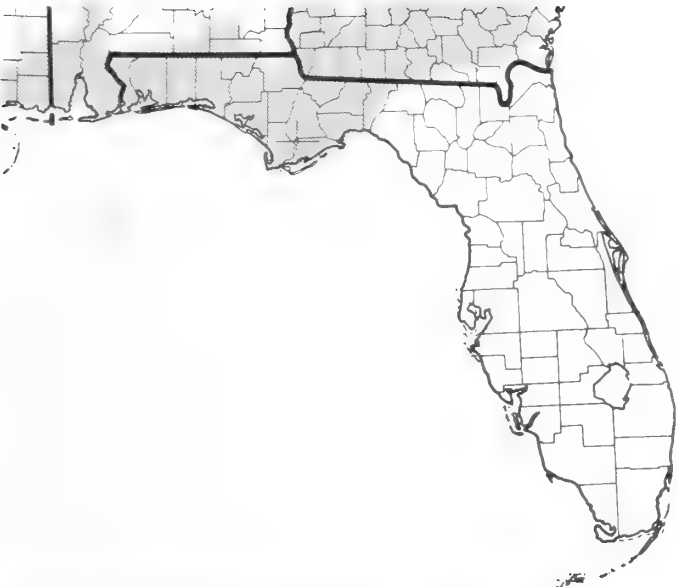
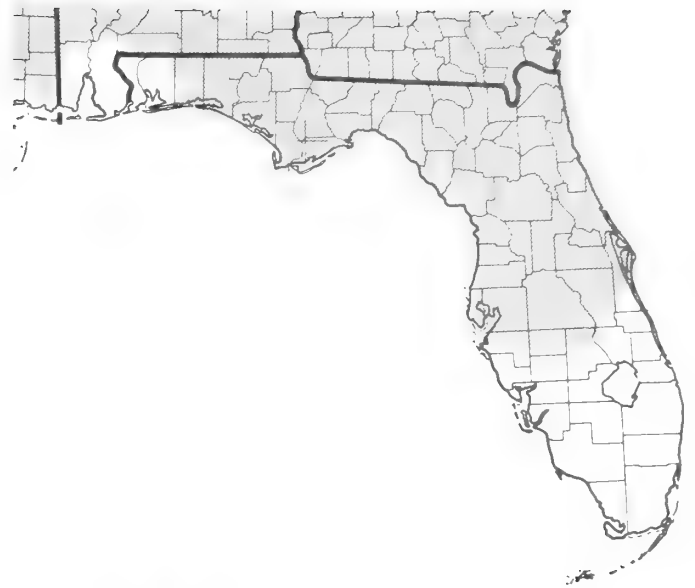
Map 25.—*Betula nigra* L., river birch. Map 26.—*Bumelia lanuginosa* (Michx.) Pers., gum bumelia. Map 27.—*Bumelia lycioides* (L.) Pers., buckthorn bumelia. Map 28.—*Bumelia tenax* (L.) Willd., tough bumelia. Map 29.—*Carpinus caroliniana* Walt., American hornbeam. Map 30.—*Carya aquatica* (Michx. f.) Nutt., water hickory.



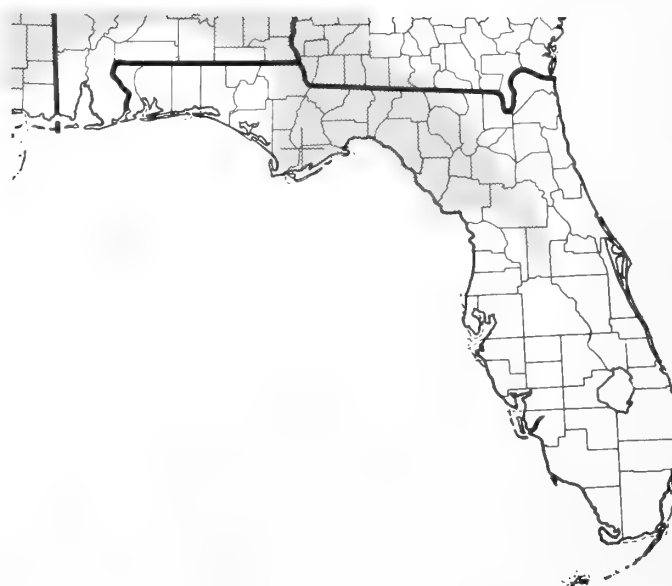
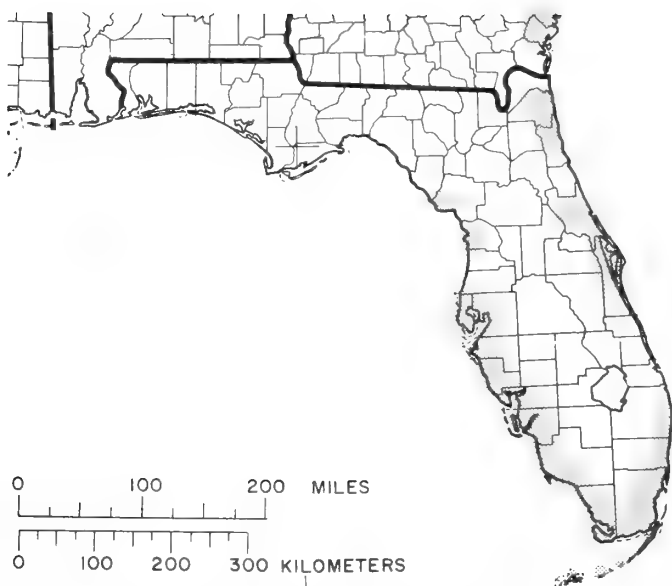
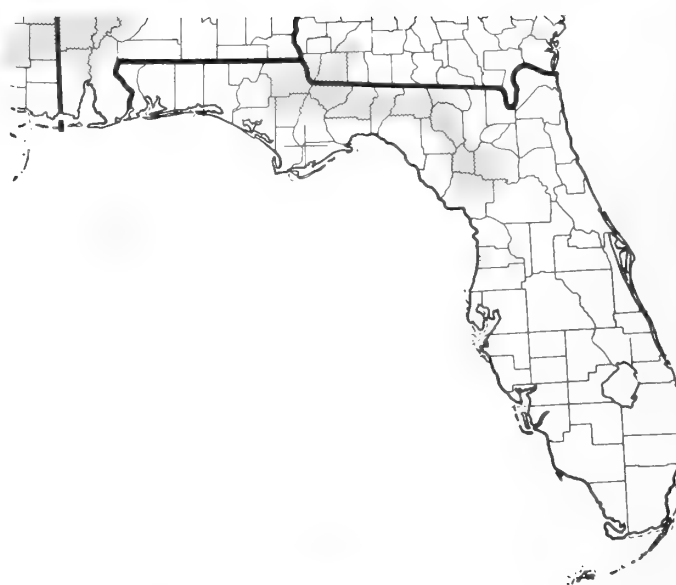
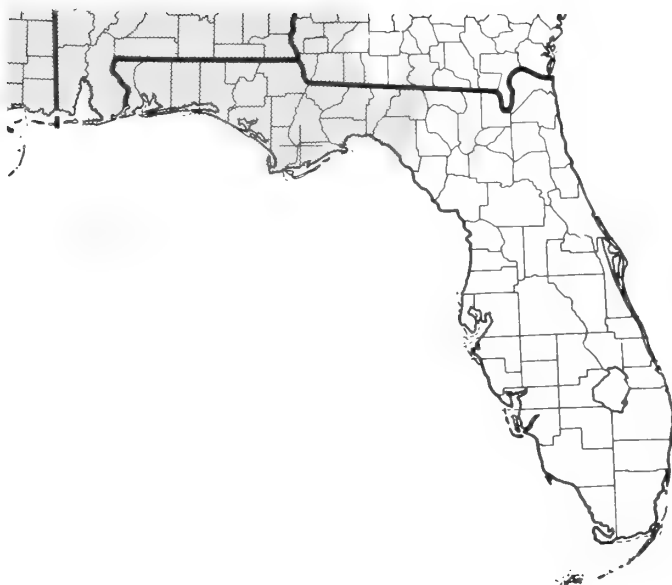
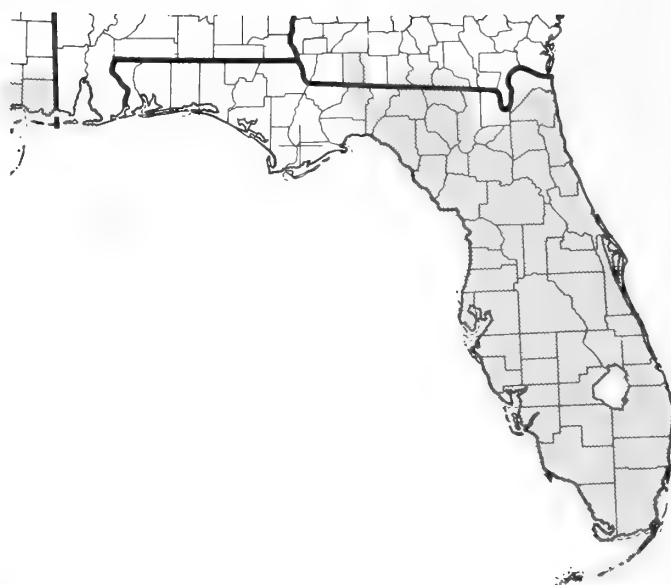
Map 31.—*Carya cordiformis* (Wangenh.) K. Koch, bitternut hickory. Map 32.—*Carya floridana* Sarg., scrub hickory. Map 33.—*Carya glabra* (Mill.) Sweet, pignut hickory. Map 34.—*Carya pallida* (Ashe) Engl. & Graebn., sand hickory. Map 35.—*Carya tomentosa* Nutt., mockernut hickory. Map 36.—*Castanea alnifolia* Nutt., Florida chinkapin.



Map 37.—*Castanea dentata* (Marsh.) Borkh., American chestnut. Map 38.—*Castanea pumila* Mill., Allegheny chinkapin. Map 39.—*Catalpa bignonioides* Walt., southern catalpa. Map 40.—*Celtis laevigata* Willd., sugarberry. Map 41.—*Celtis tenuifolia* Nutt., Georgia hackberry. Map 42.—*Cephalanthus occidentalis* L., buttonbush.

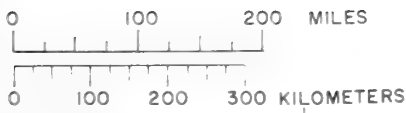
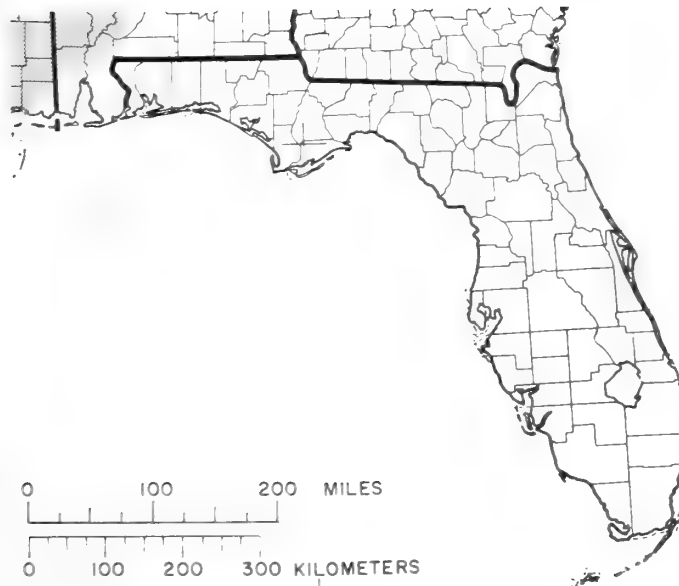
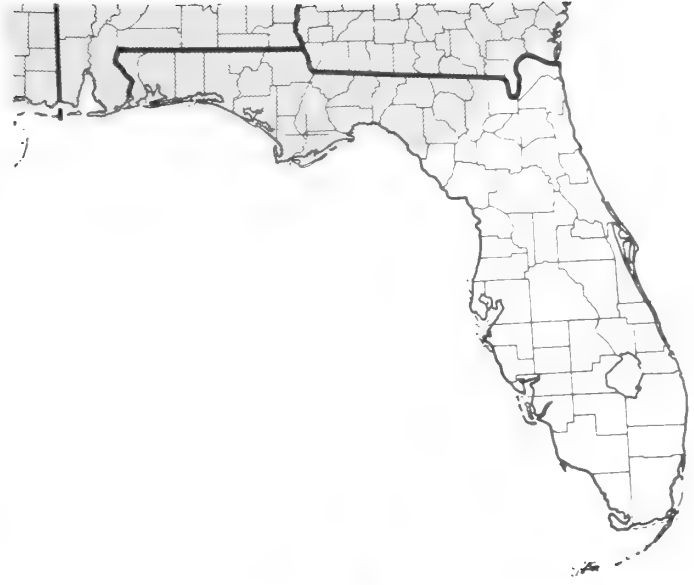


Map 43.—*Cercis canadensis* L., eastern redbud. Map 44.—*Chionanthus virginicus* L., fringetree. Map 45.—*Cliftonia monophylla* (Lam.) Britton, buckwheat-tree. Map 46.—*Cornus alternifolia* L. f., alternate-leaf dogwood. Map 47.—*Cornus florida* L., flowering dogwood. Map 48.—*Cyrilla racemiflora* L., swamp cyrilla.

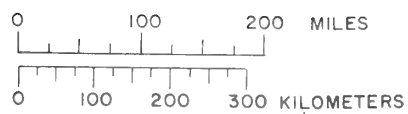
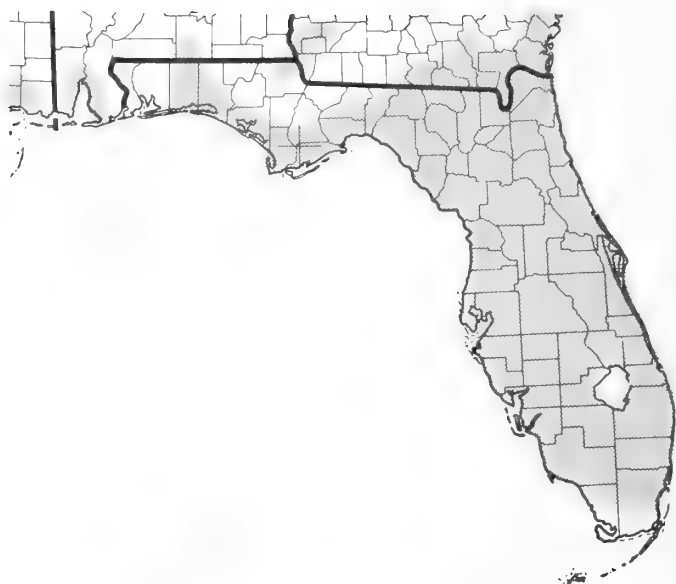
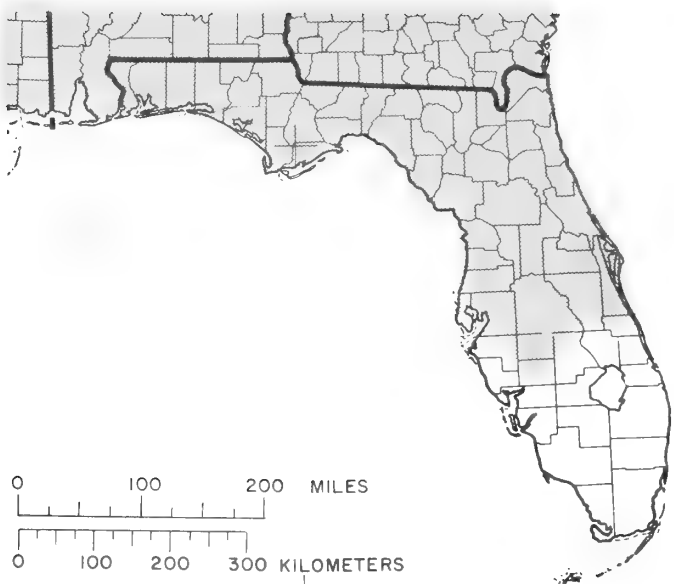
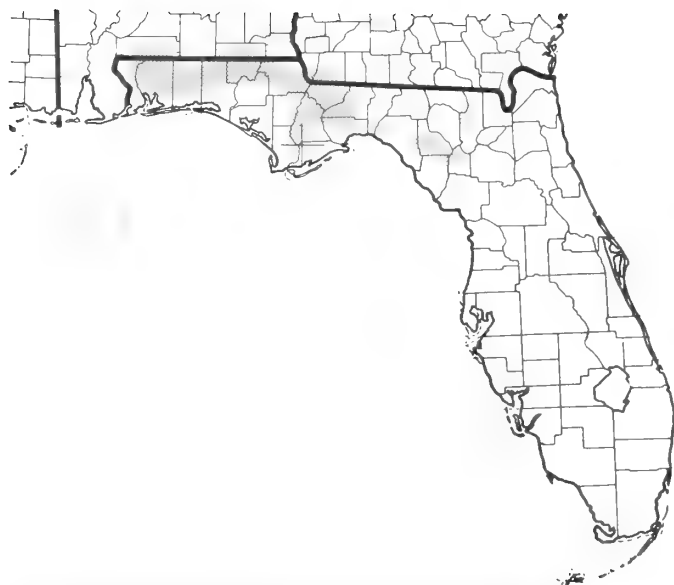
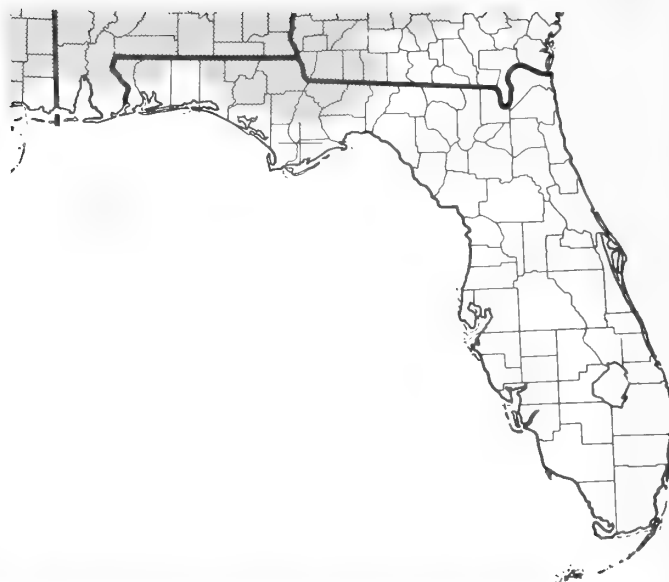


Map 49.—*Diospyros virginiana* L., common persimmon. Map 50.—*Erythrina herbacea* L., southeastern coralbean. Map 51.—*Fagus grandifolia* Ehrh., American beech. Map 52.—*Forestiera acuminata* (Michx.) Poir., swamp-privet. Map 53.—*Forestiera segregata* (Jacq.) Krug & Urban, Florida-privet. Map 54.—*Fraxinus americana* L., white ash.

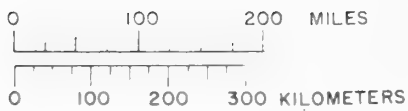
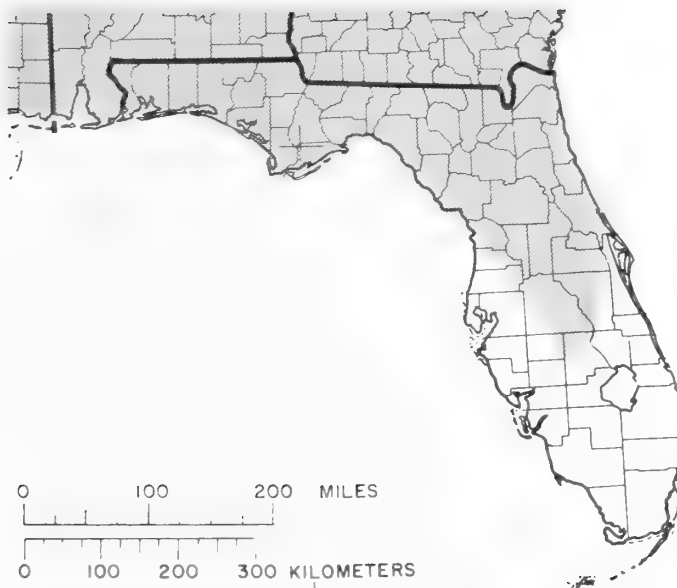
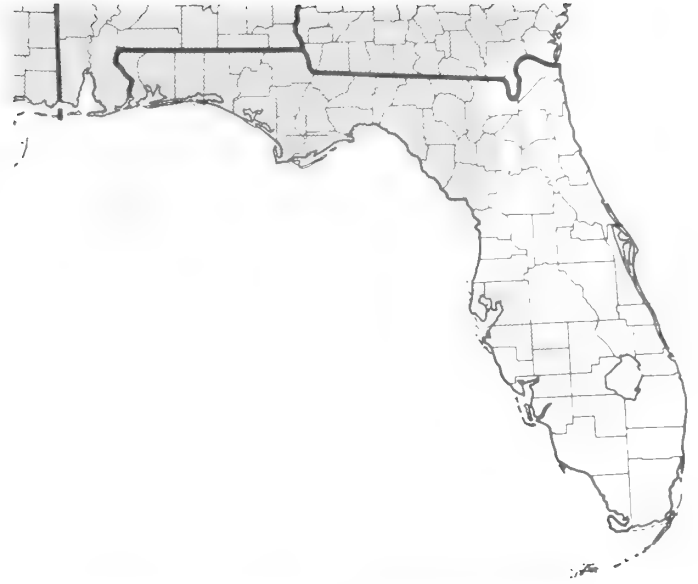
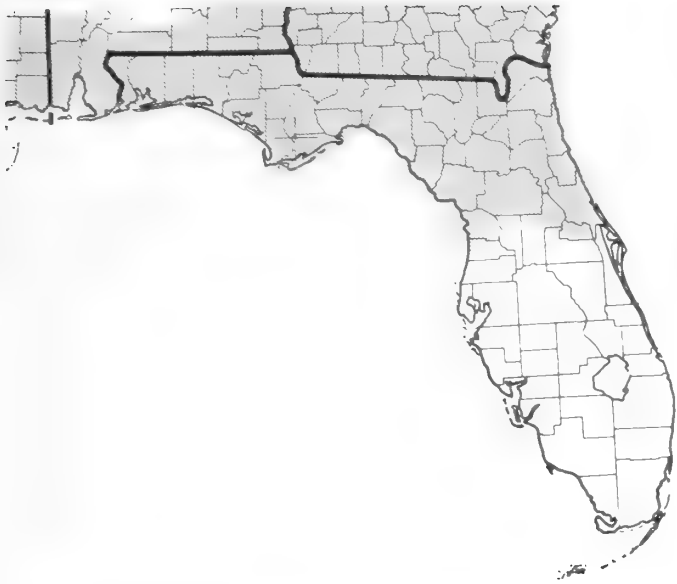




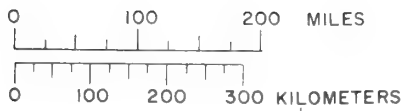
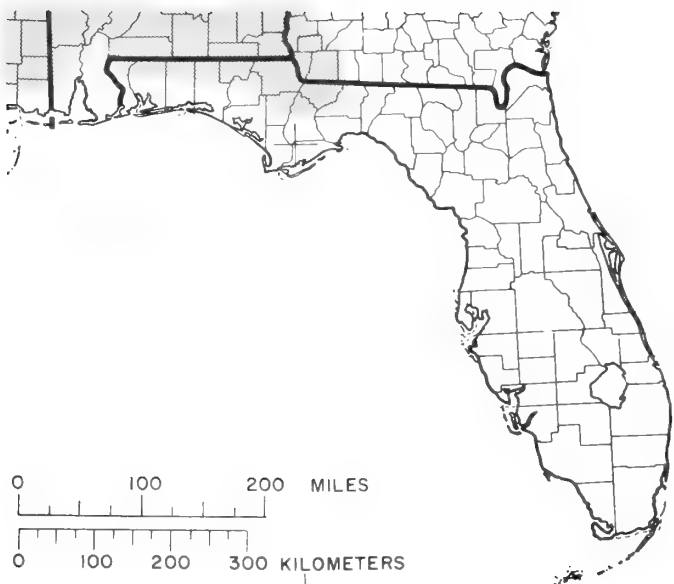
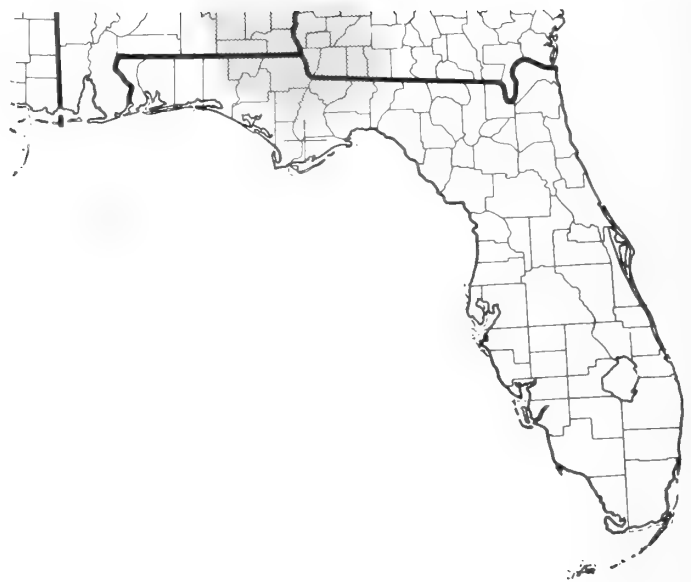
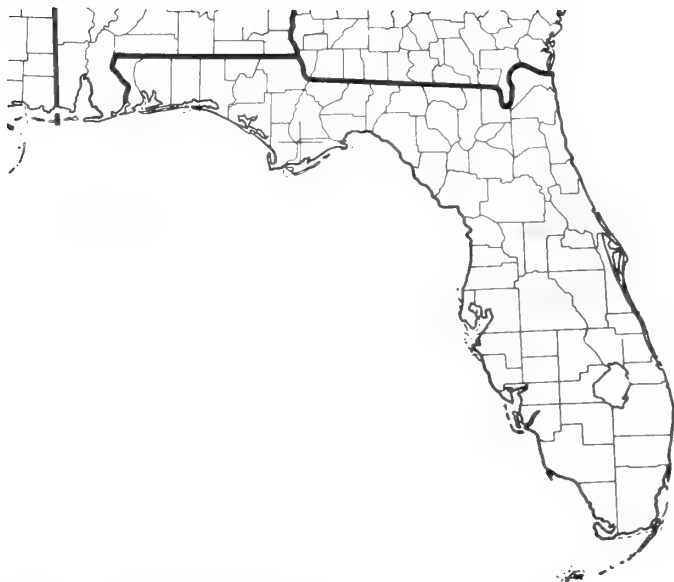
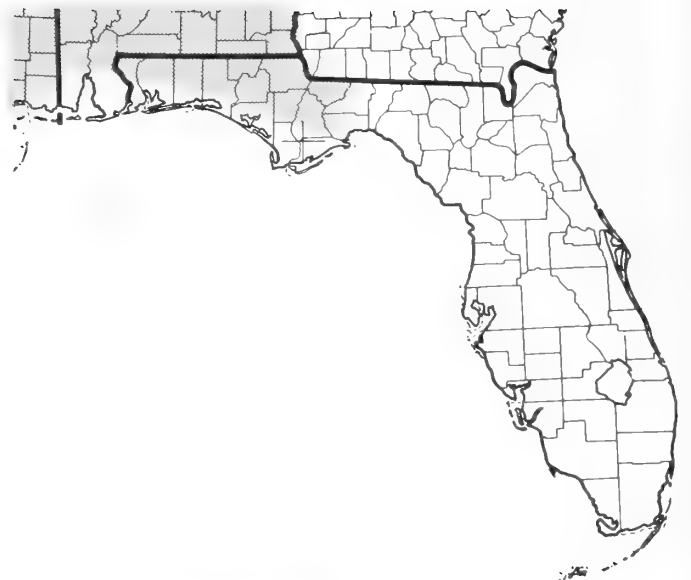
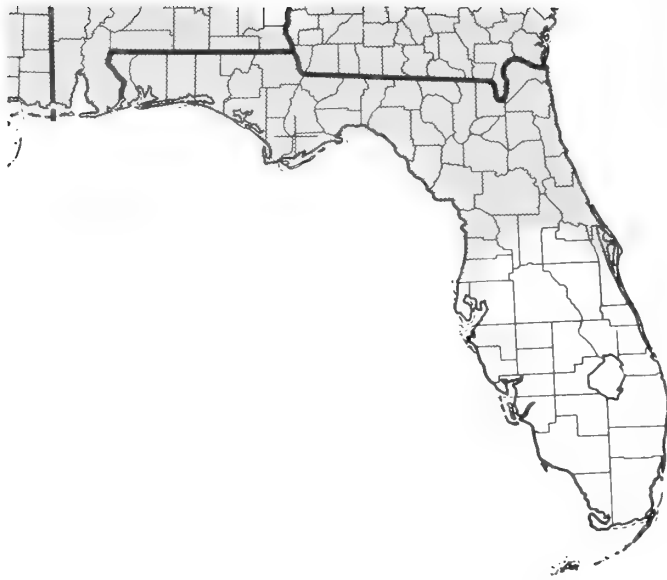
Map 55.—*Fraxinus caroliniana* Mill., Carolina ash. Map 56.—*Fraxinus pennsylvanica* Marsh., green ash. Map 57.—*Fraxinus profunda* (Bush) Bush, pumpkin ash. Map 58.—*Gleditsia aquatica* Marsh., waterlocust. Map 59.—*Gleditsia triacanthos* L., honeylocust. Map 60.—*Gordonia lasianthus* (L.) Ellis, loblolly-bay.



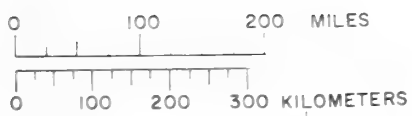
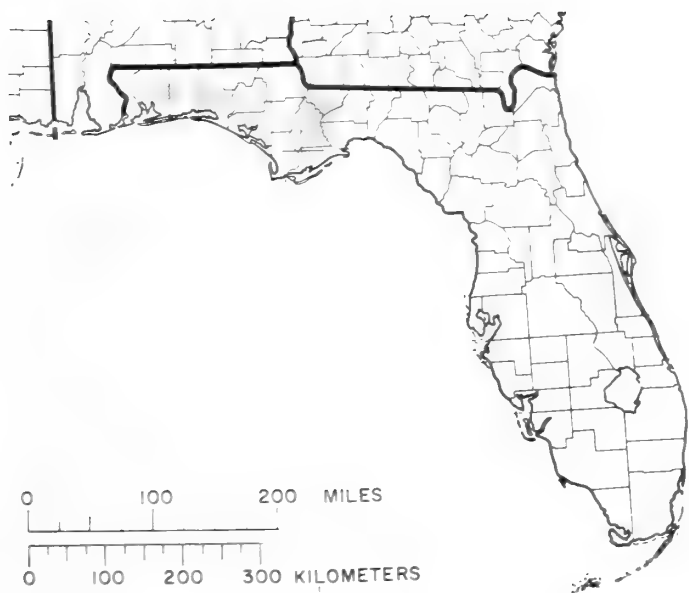
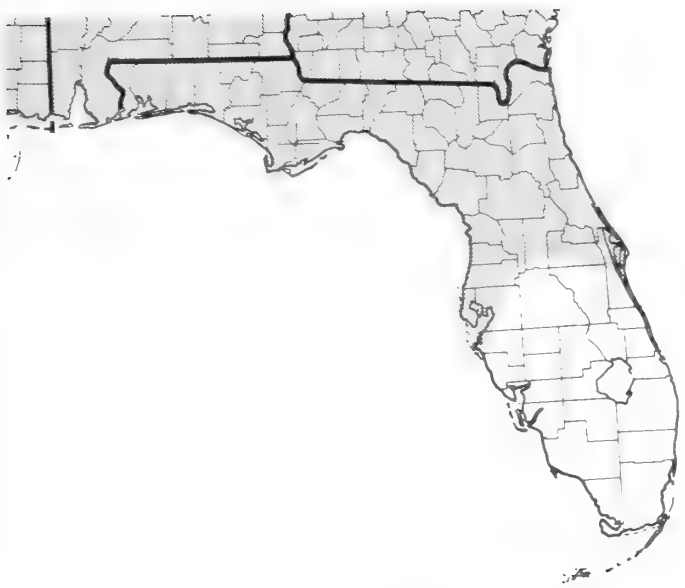
Map 61.—*Halesia carolina* L., Carolina silverbell. Map 62.—*Halesia diptera* Ellis, two-wing silverbell. Map 63.—*Halesia parviflora* Michx., little silverbell. Map 64.—*Hamamelis virginiana* L., witch-hazel. Map 65.—*Ilex ambigua* (Michx.) Torr., Carolina holly. Map 66.—*Ilex cassine* L., dahoon.



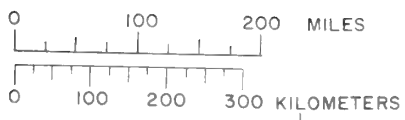
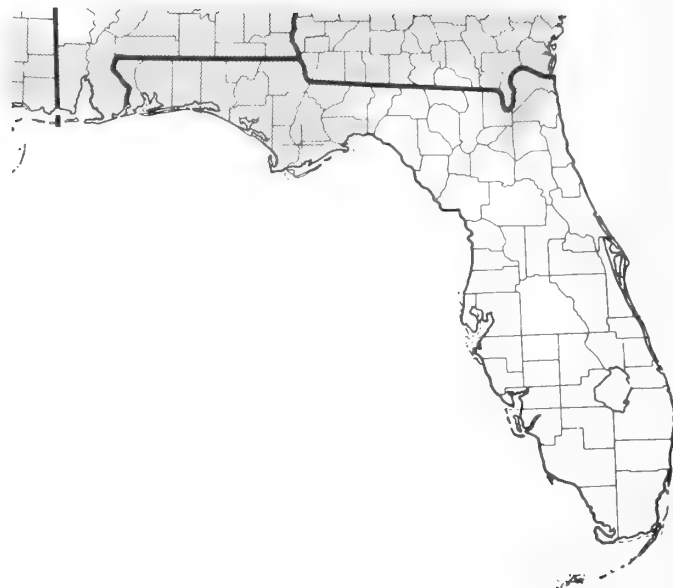
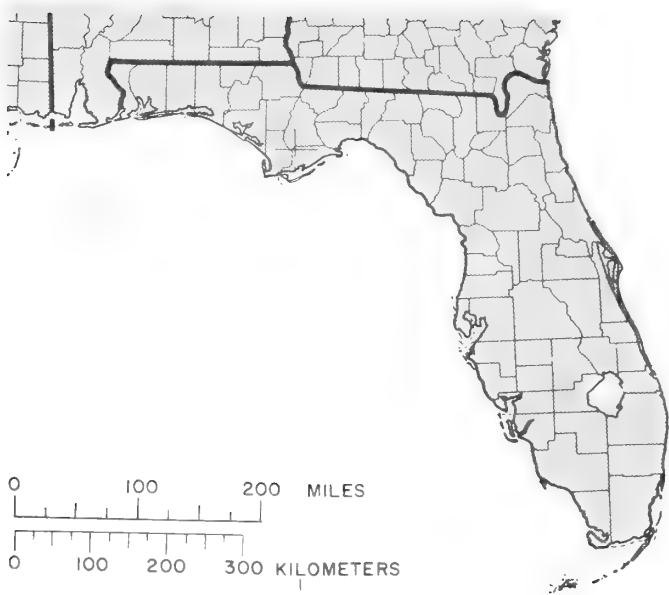
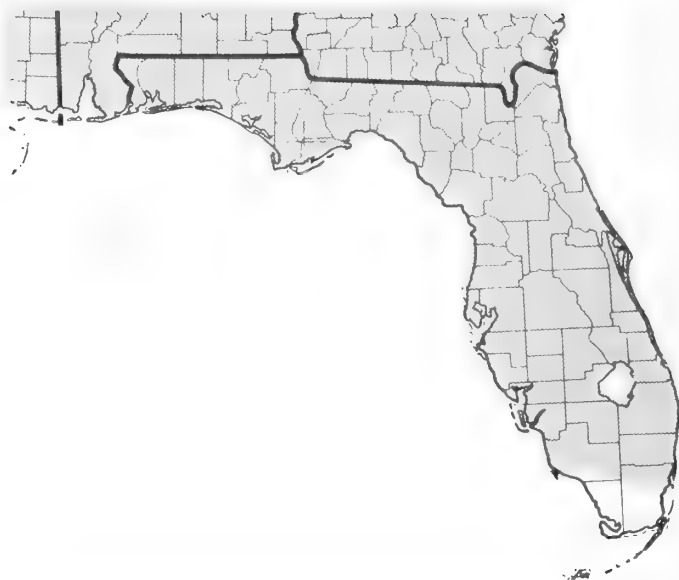
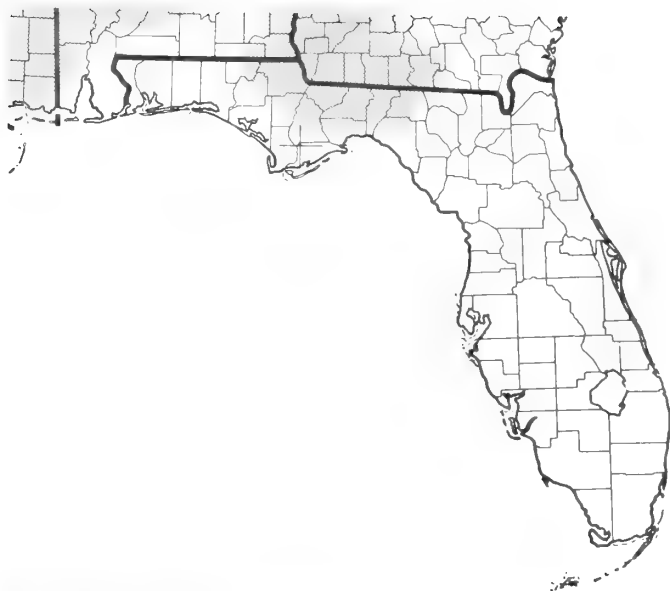
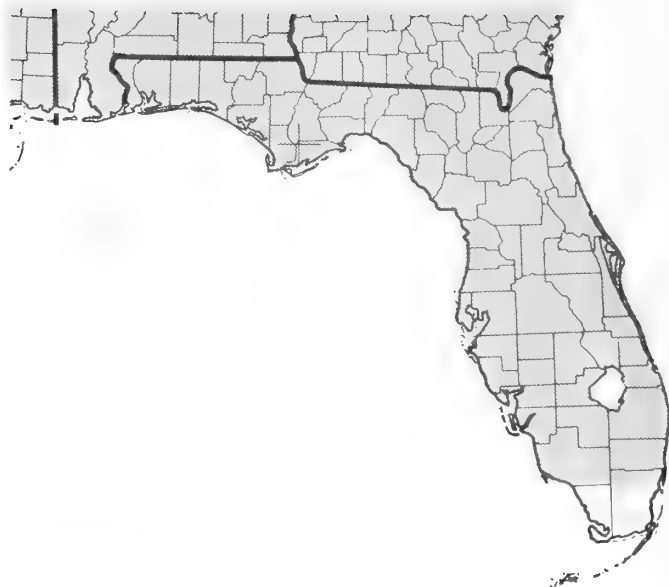
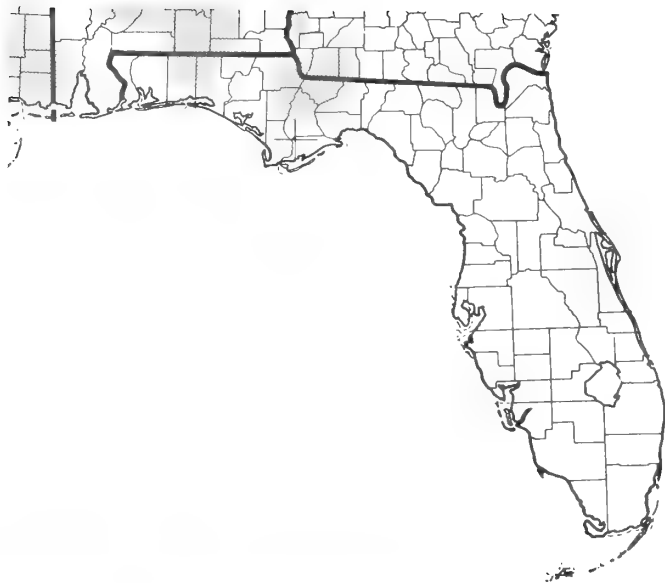
Map 67.—*Ilex coriacea* (Pursh) Chapm., large gallberry. Map 68.—*Ilex decidua* Walt., possumhaw. Map 69.—*Ilex montana* Torr. & Gray, mountain winterberry. Map 70.—*Ilex myrtifolia* Walt., myrtle dahoon. Map 71.—*Ilex opaca* Ait., American holly. Map 72.—*Ilex verticillata* (L.) Gray, common winterberry.



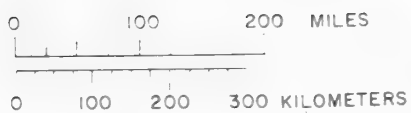
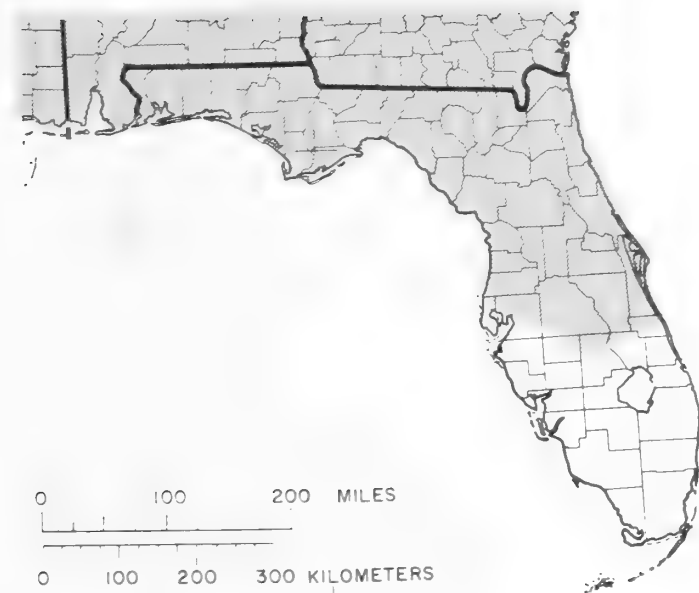
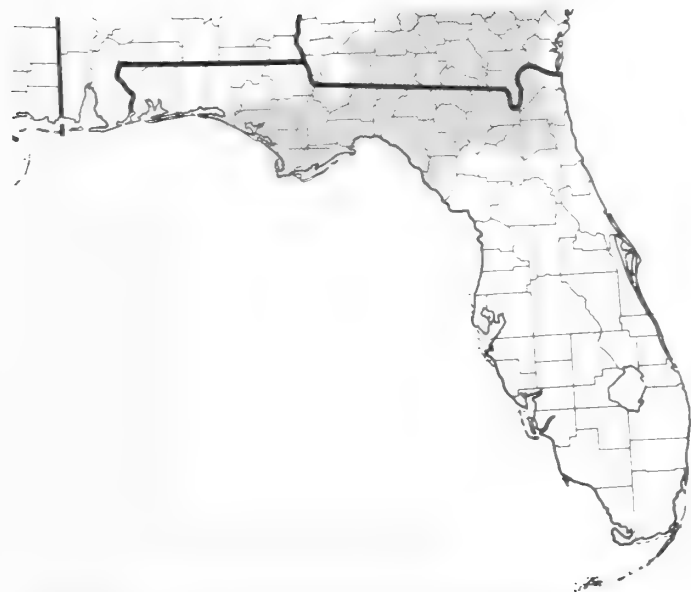
Map 73.—*Ilex vomitoria* Ait., yaupon. Map 74.—*Illicium floridanum* Ellis, Florida anise-tree. Map 75.—*Illicium parviflorum* Michx., yellow anise-tree. Map 76.—*Juglans nigra* L., black walnut. Map 77.—*Kalmia latifolia* L., mountain-laurel. Map 78.—*Leitneria floridana* Cham., corkwood.



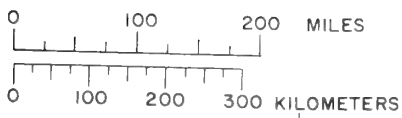
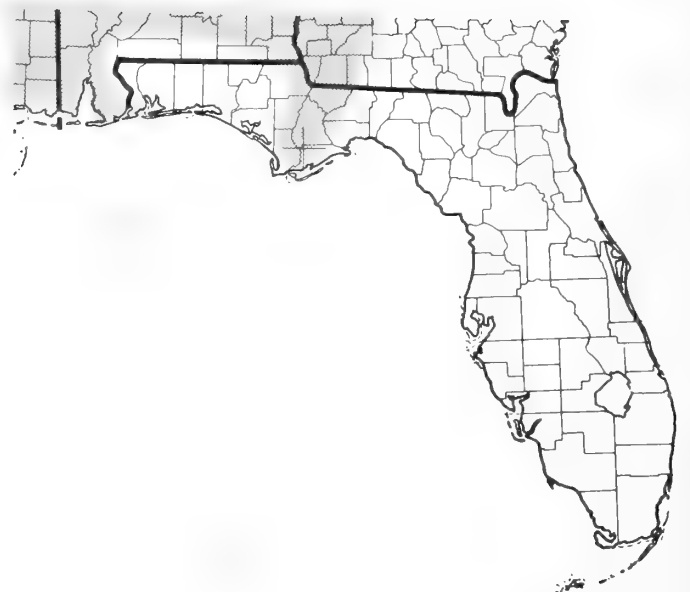
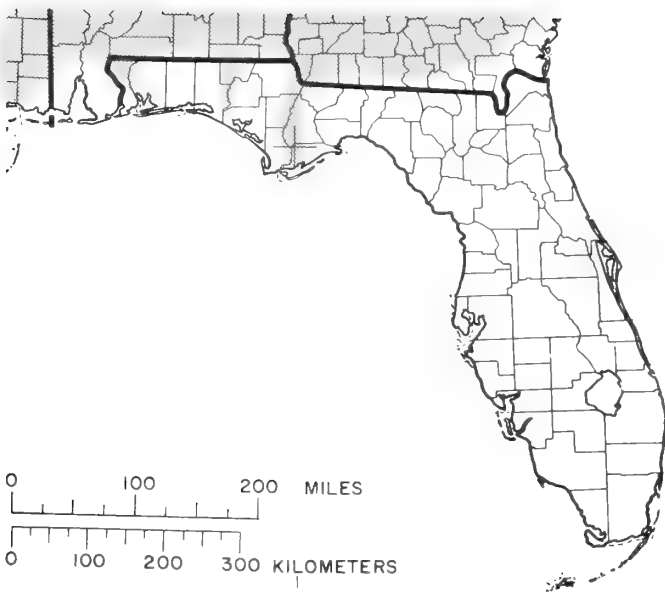
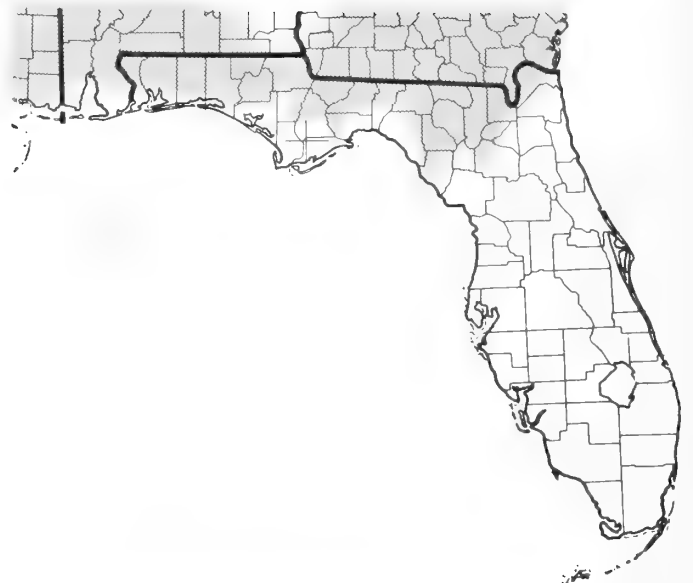
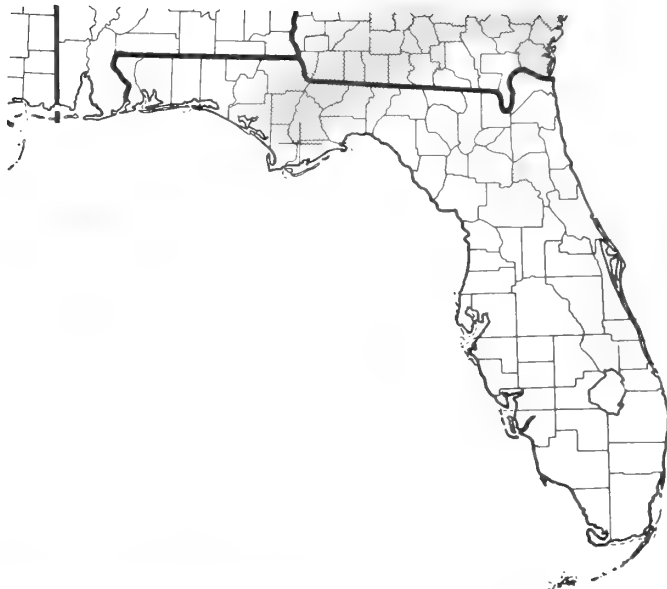
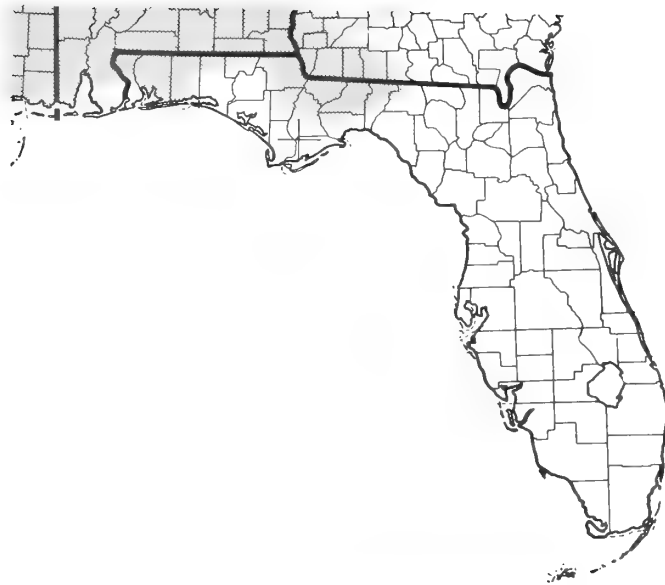
Map 79.—*Liquidambar styraciflua* L., sweetgum. Map 80.—*Liriodendron tulipifera* L., yellow-poplar. Map 81.—*Lyonia ferruginea* Nutt., tree lyonia. Map 82.—*Magnolia acuminata* L., cucumbertree. Map 83.—*Magnolia ashei* Weatherby, Ashe magnolia. Map 84.—*Magnolia grandiflora* L., southern magnolia.



Map 85.—*Magnolia pyramidata* Bartr., pyramid magnolia. Map 86.—*Magnolia virginiana* L., sweetbay. Map 87.—*Malus angustifolia* (Ait.) Michx., southern crab apple. Map 88.—*Morus rubra* L., red mulberry. Map 89.—*Myrica cerifera* L., southern bayberry. Map 90.—*Myrica heterophylla* Raf., evergreen bayberry.

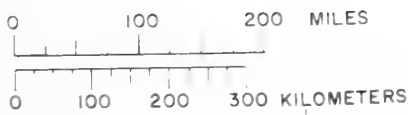
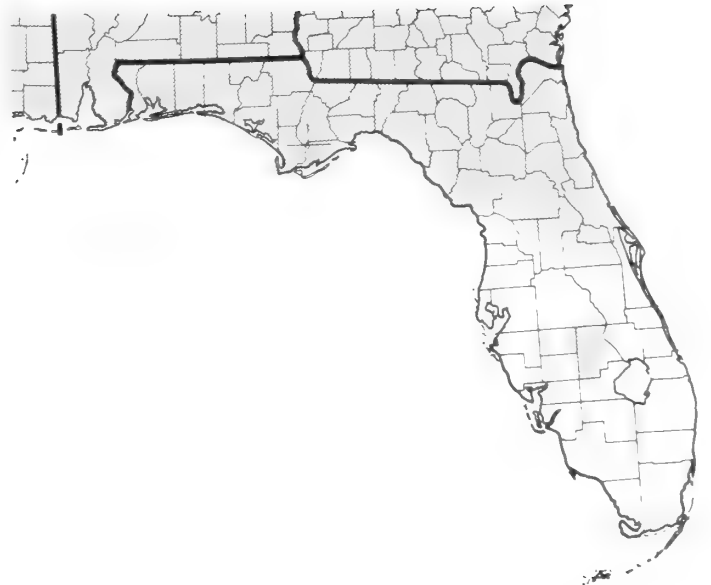
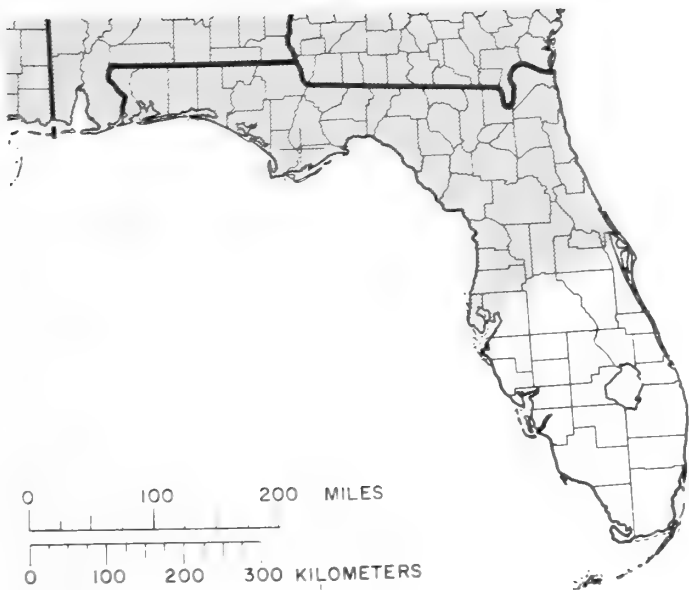


Map 91.—*Myrica inodora* Bartr., odorless bayberry. Map 92.—*Nyssa aquatica* L., water tupelo. Map 93.—*Nyssa ogeche* Bartr., Ogeechee tupelo. Map 94.—*Nyssa sylvatica* Marsh., black tupelo; blackgum. Map 95.—*Osmanthus americanus* (L.) Benth. & Hook. f., devilwood. Map 96.—*Ostrya virginiana* (Mill.) K. Koch, eastern hophornbeam.

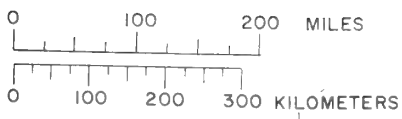
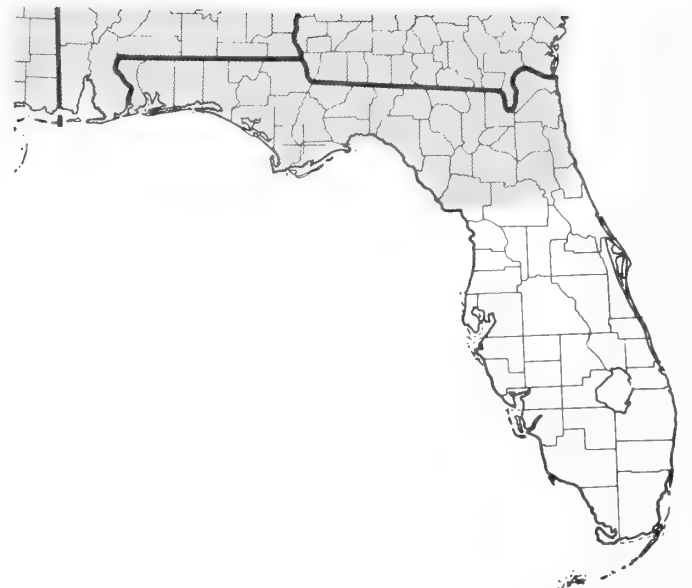
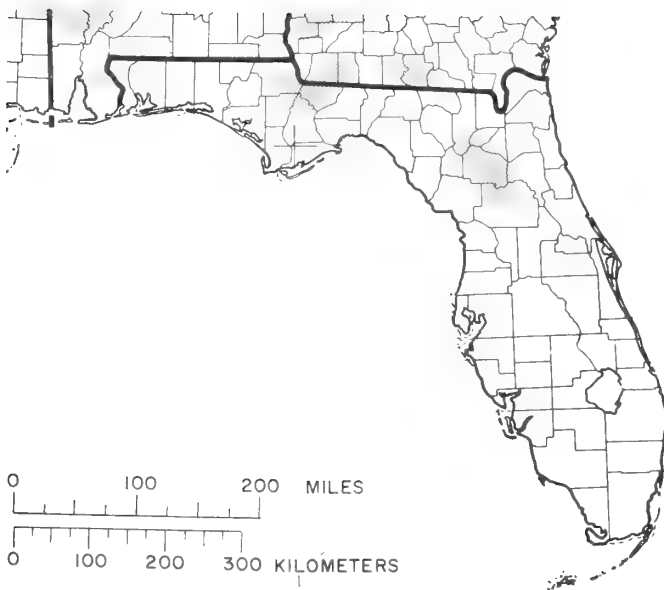
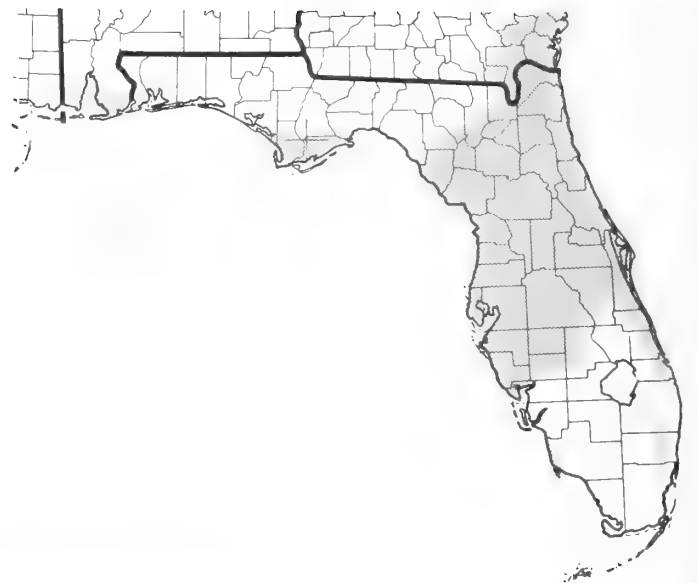
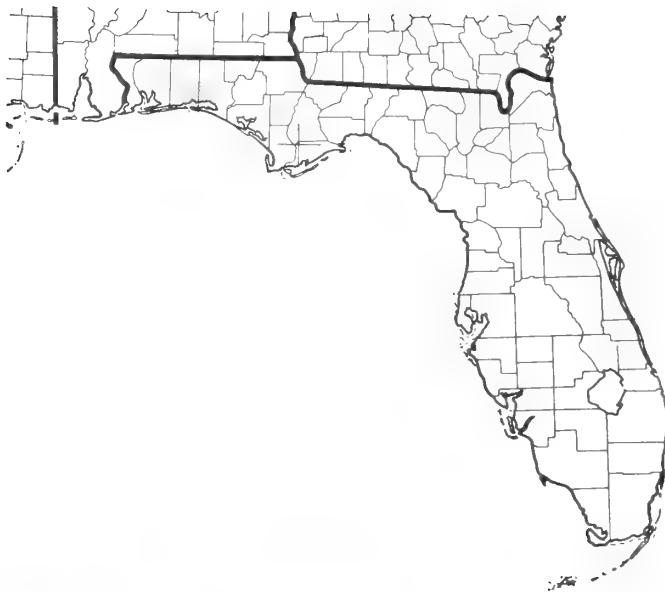
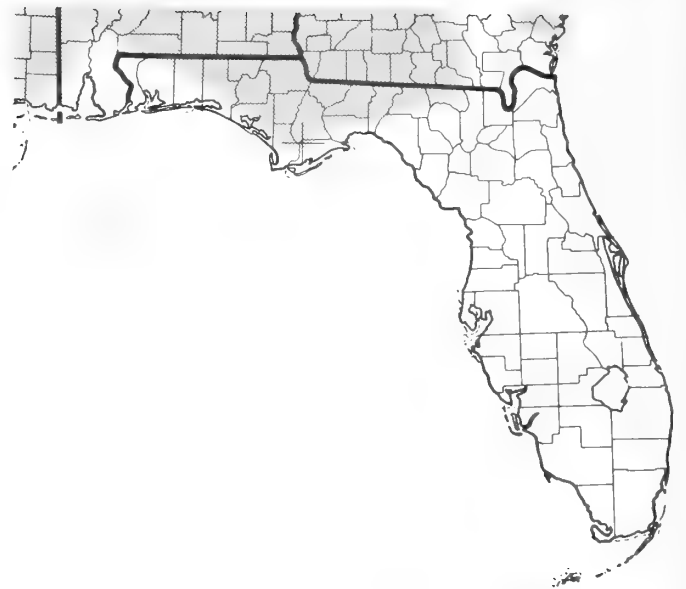


Map 97.—*Oxydendrum arboreum* (L.) DC., sourwood. Map 98.—*Persea borbonia* (L.) Spreng., redbay. Map 99.—*Pinckneya pubens* Michx., pinckneya. Map 100.—*Planera aquatica* Gmel., planertree. Map 101.—*Platanus occidentalis* L., sycamore. Map 102.—*Populus deltoides* Bartr., eastern cottonwood.

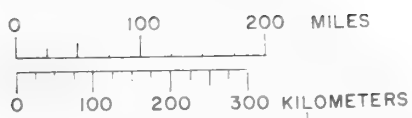
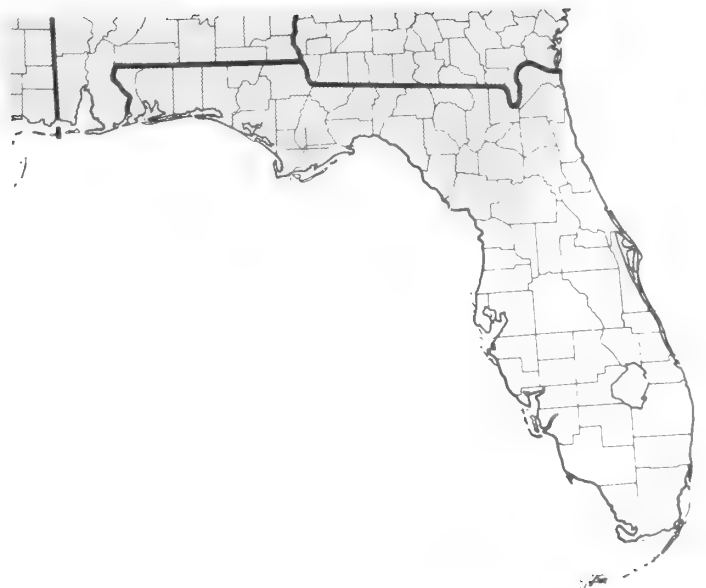
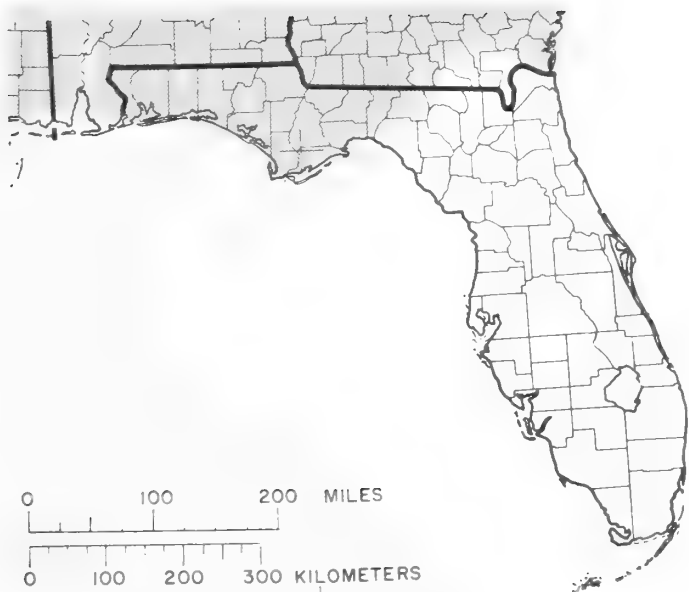
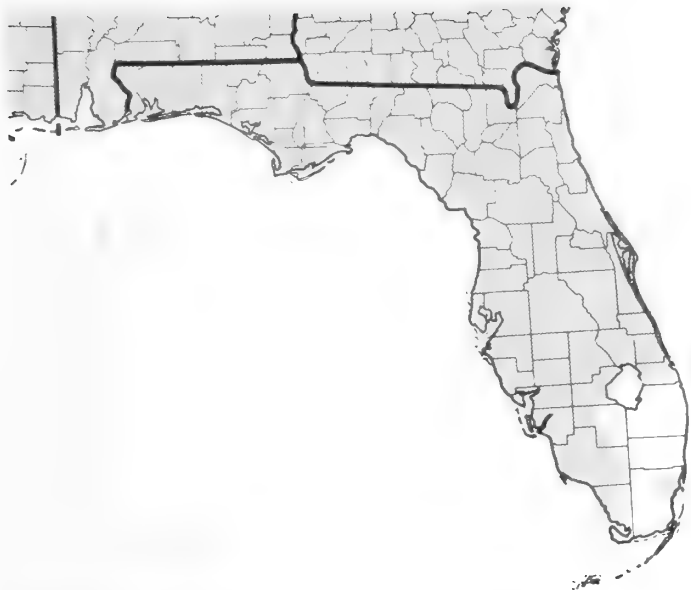
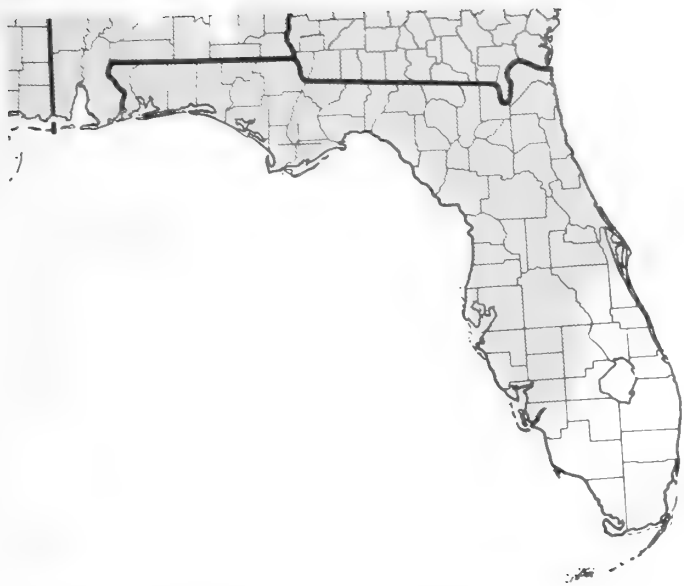




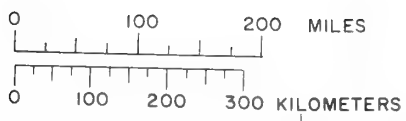
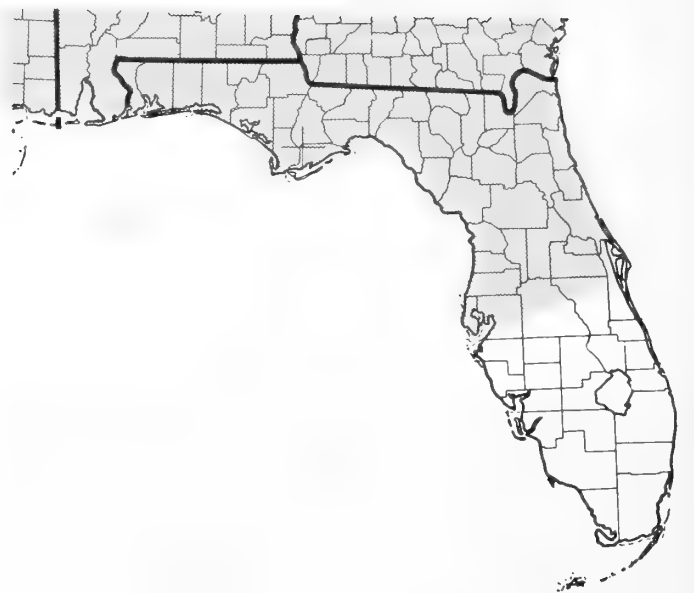
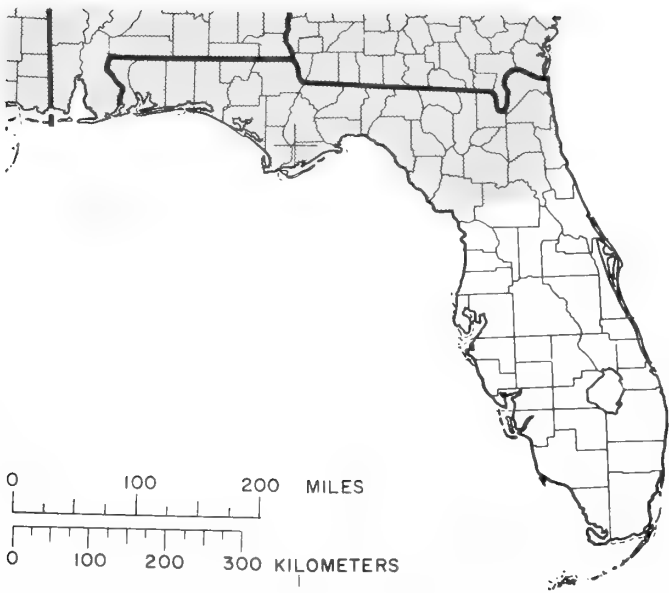
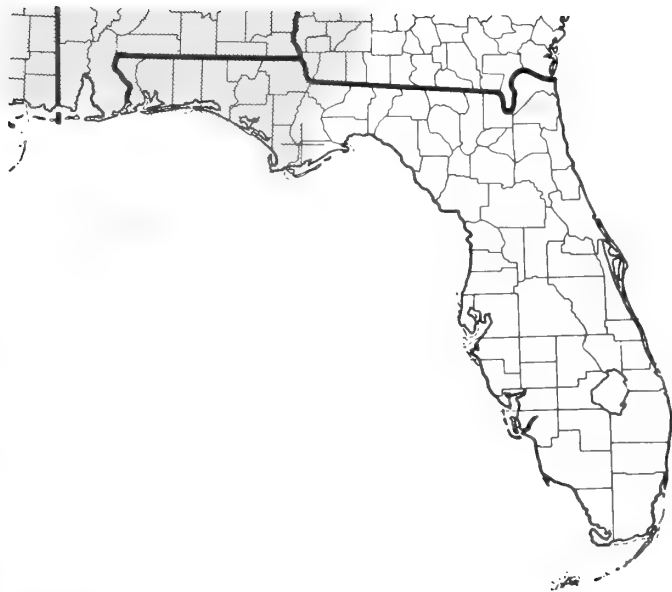
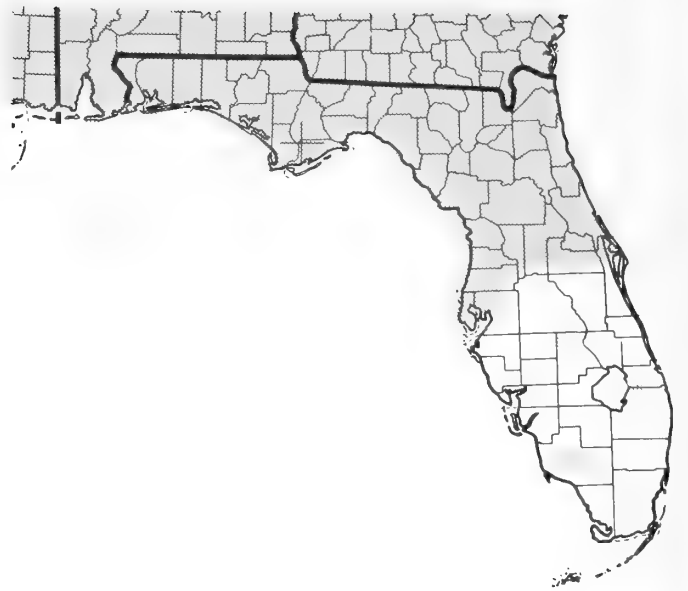
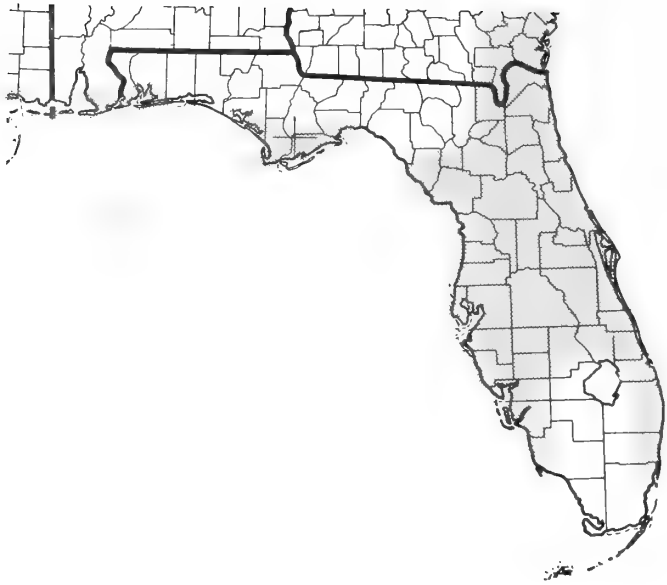
Map 103.—*Populus heterophylla* L., swamp cottonwood. Map 104.—*Prunus americana* Marsh., American Plum. Map 105.—*Prunus angustifolia* Marsh., Chickasaw plum. Map 106.—*Prunus caroliniana* (Mill.) Ait., Carolina laurelcherry. Map 107.—*Prunus serotina* Ehrh., black cherry. Map 108.—*Prunus umbellata* Ell., flatwoods plum.



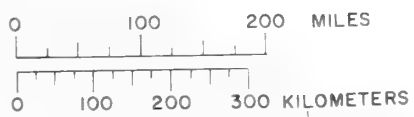
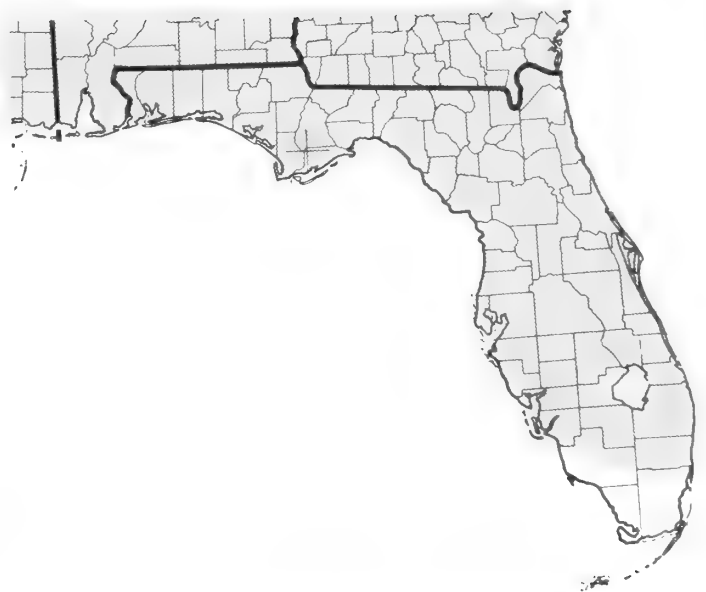
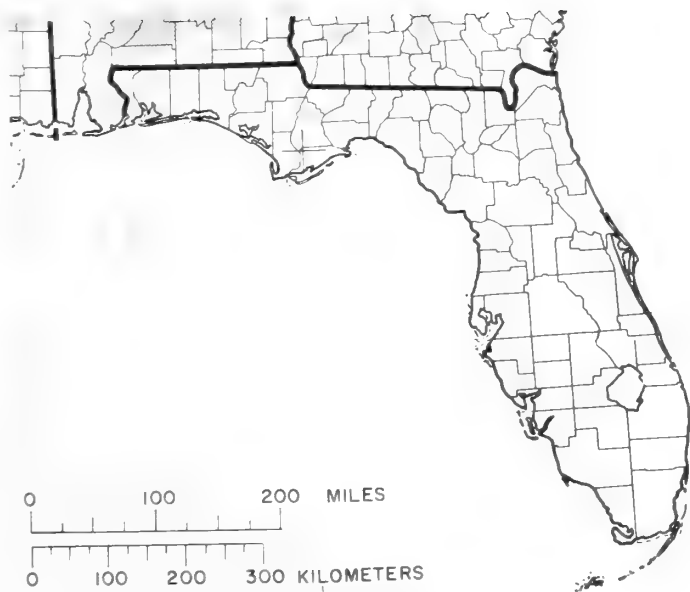
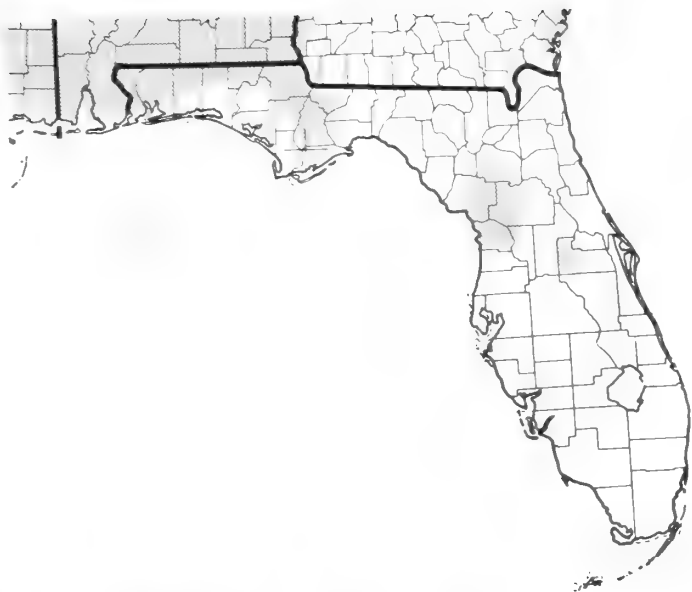
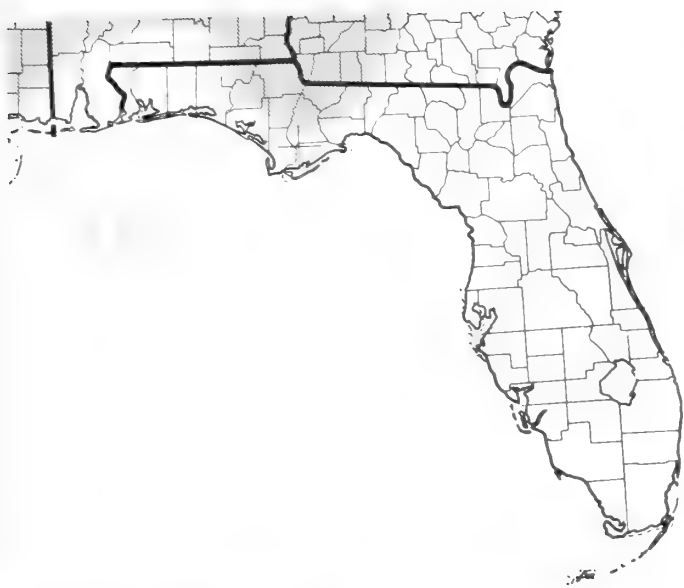
Map 109.—*Ptelea trifoliata* L., common hoptree. Map 110.—*Quercus alba* L., white oak. Map 111.—*Quercus arkansana* Sarg., Arkansas oak. Map 112.—*Quercus chapmanii* Sarg., Chapman oak. Map 113.—*Quercus durandii* Buckl., Durand oak. Map 114.—*Quercus falcata* Michx., southern red oak.



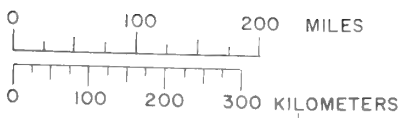
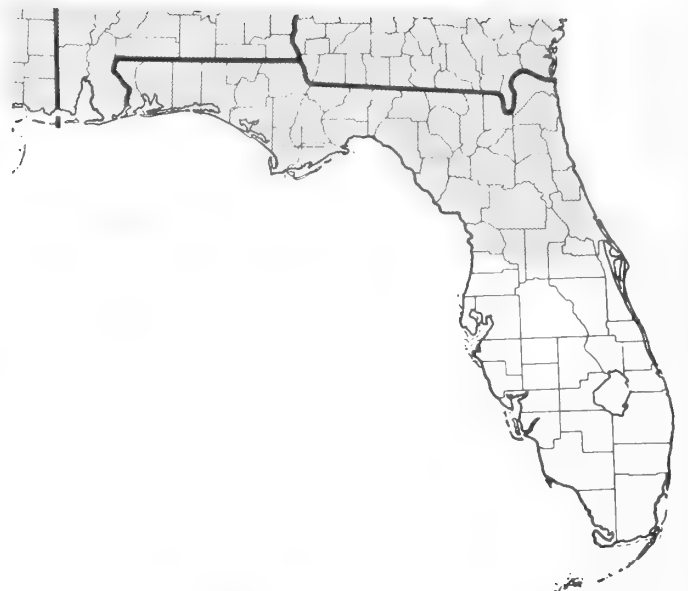
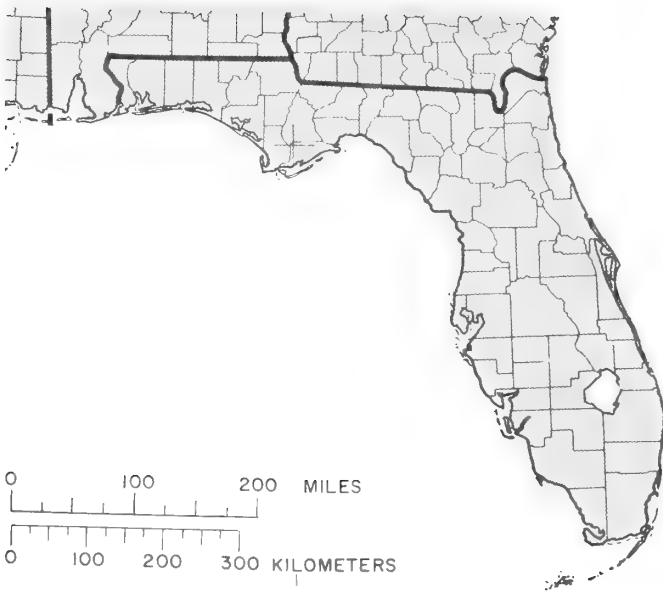
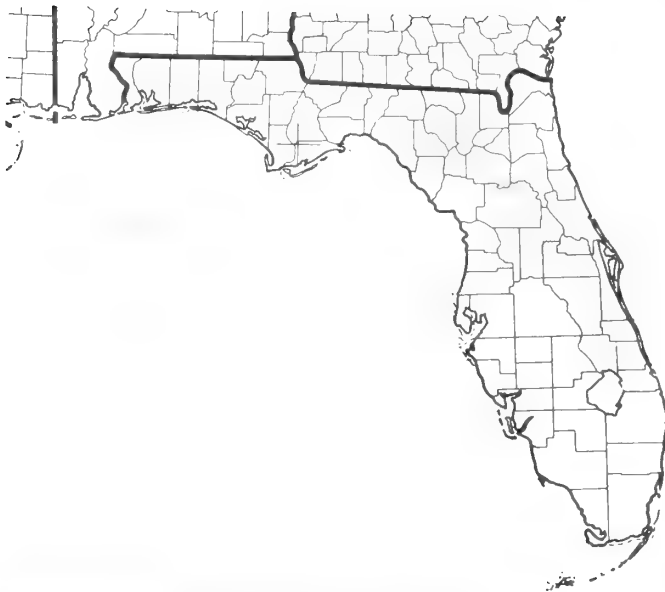
Map 115.—*Quercus incana* Bartr., bluejack oak. Map 116.—*Quercus laevis* Walt., turkey oak. Map 117.—*Quercus laurifolia* Michx., laurel oak. Map 118.—*Quercus lyrata* Walt., overcup oak. Map 119.—*Quercus marilandica* Muenchh., blackjack oak. Map 120.—*Quercus michauxii* Nutt., swamp chestnut oak.



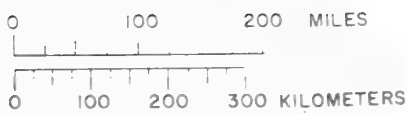
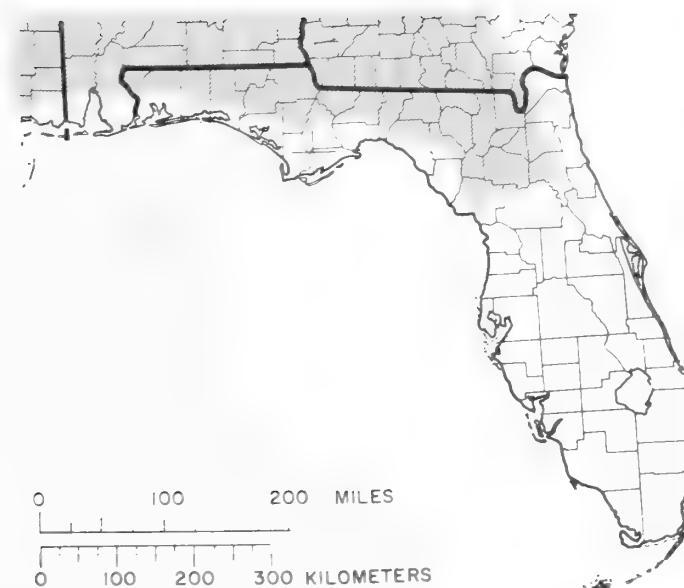
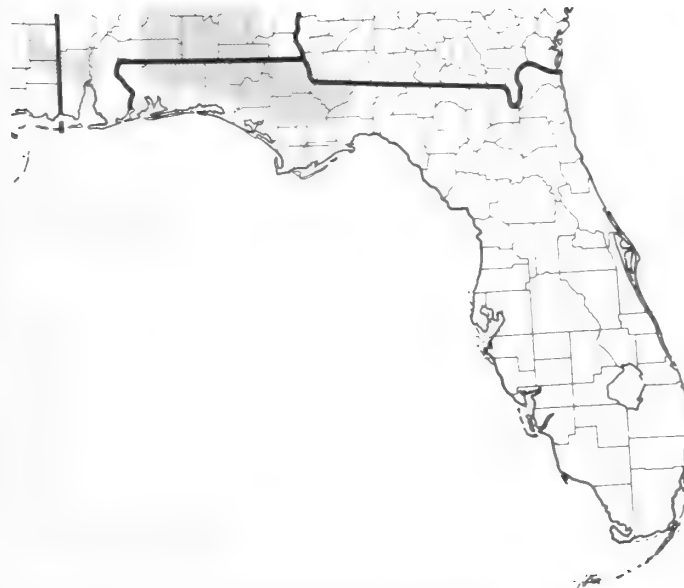
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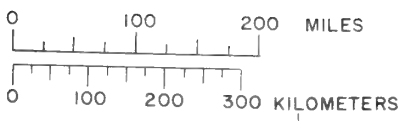
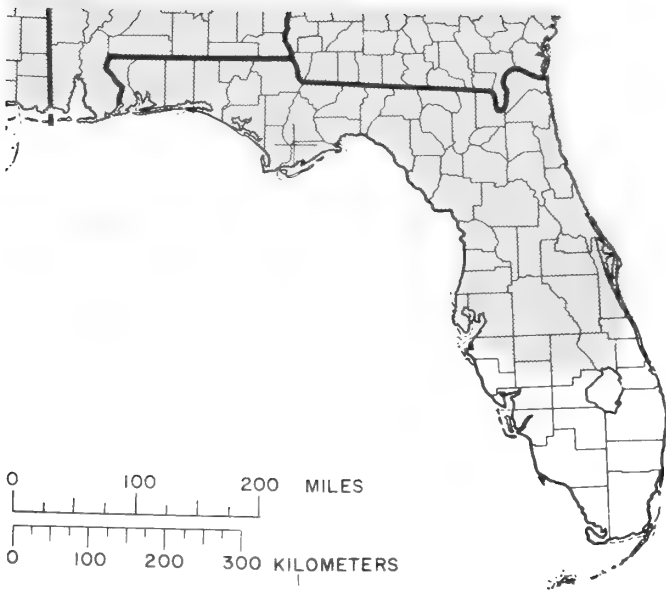
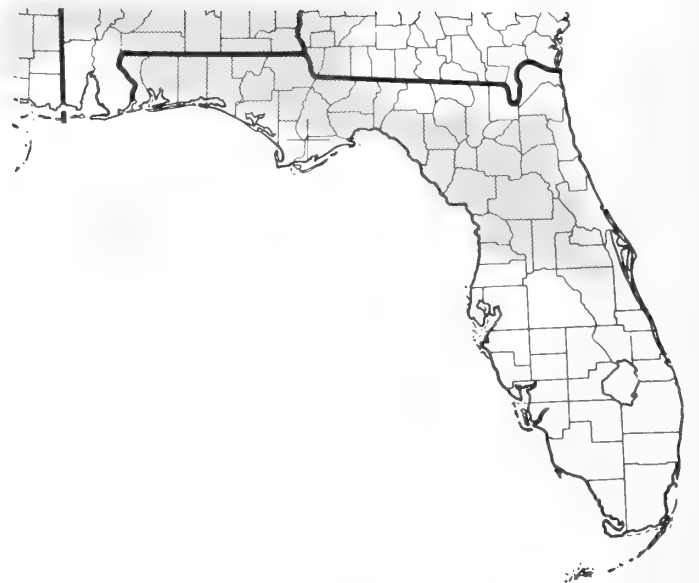
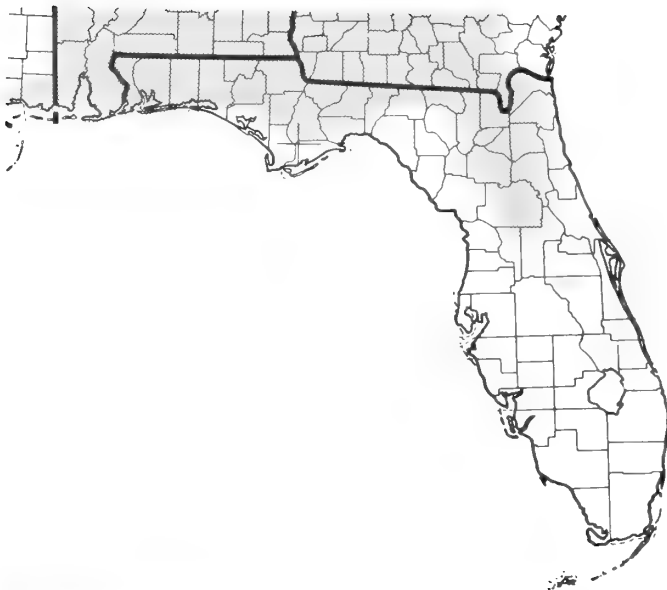
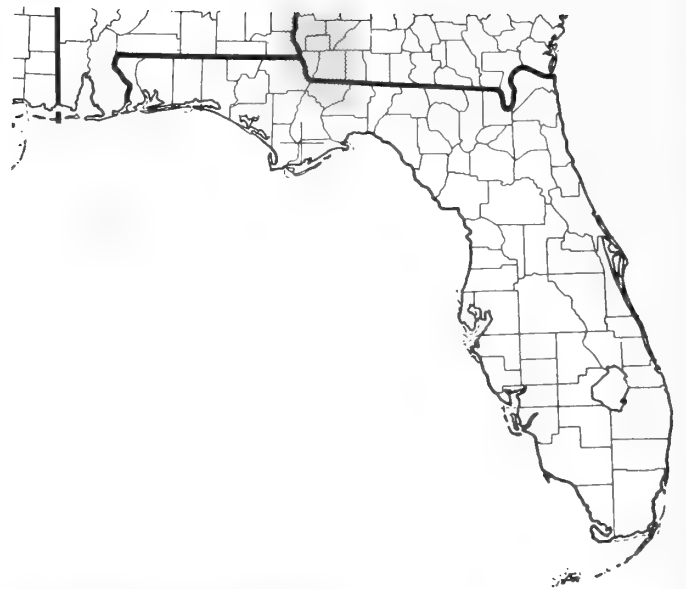
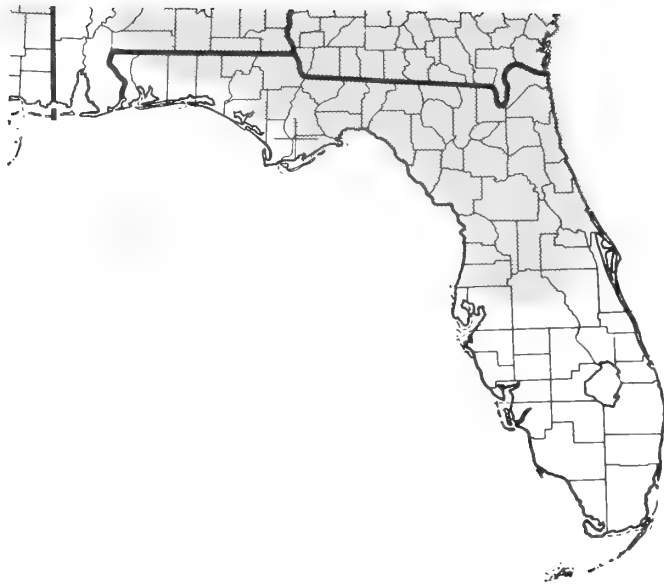
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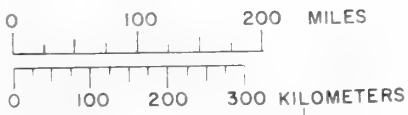
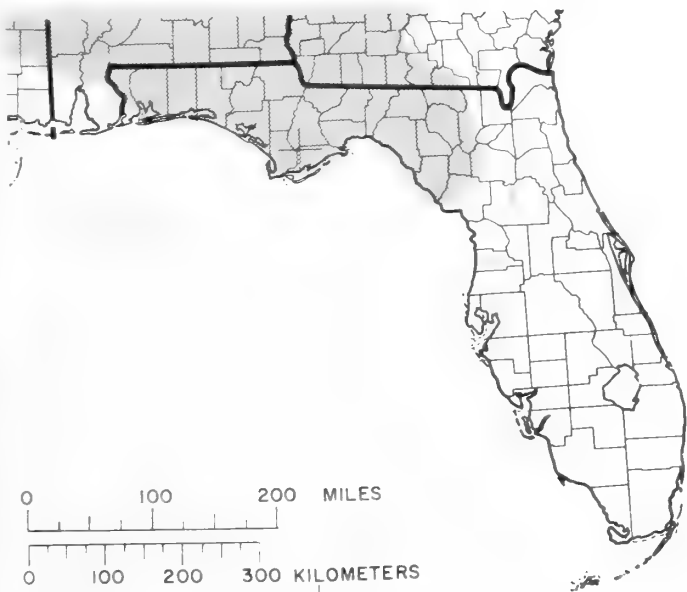
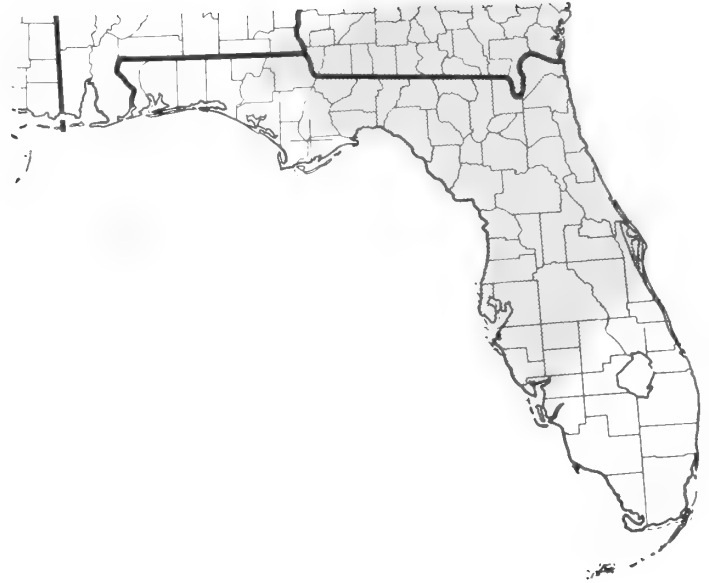
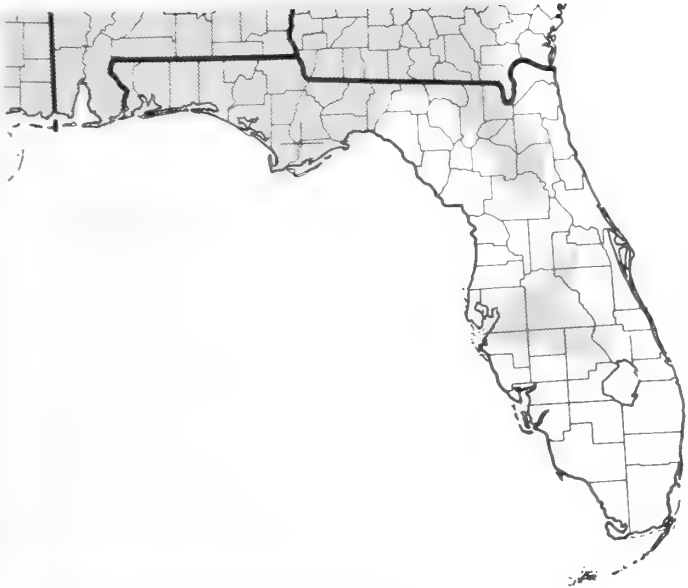
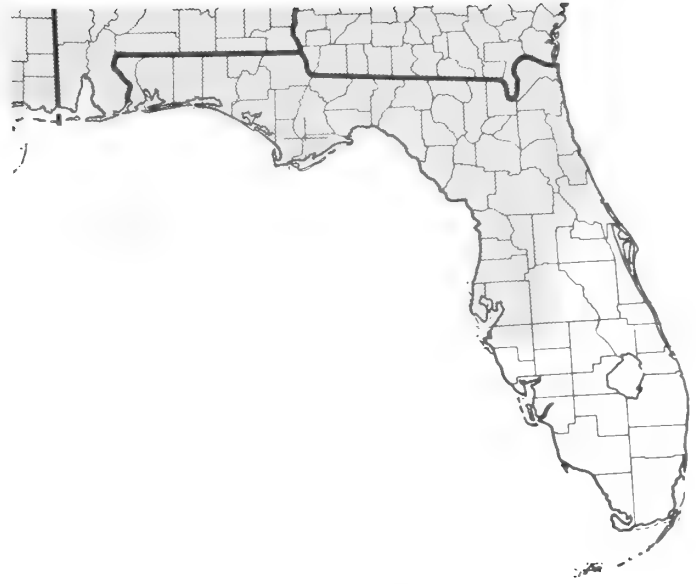


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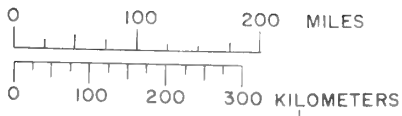
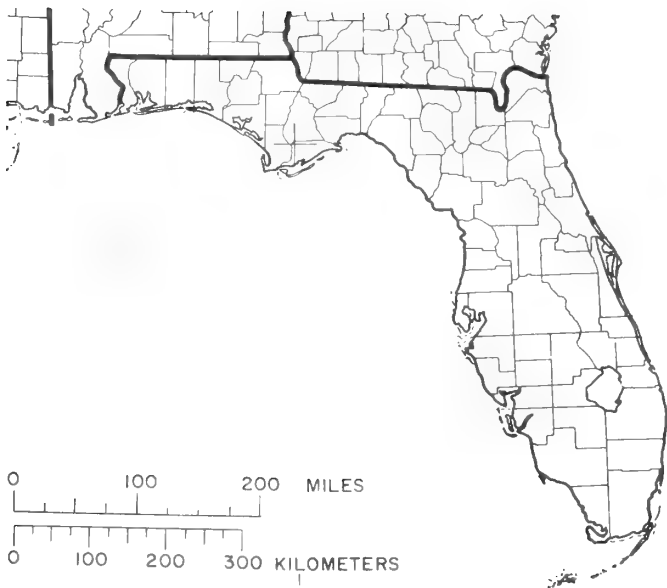
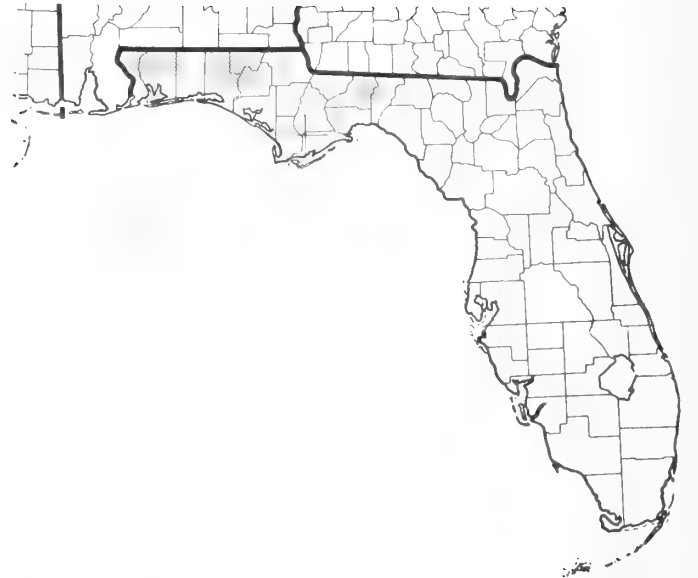
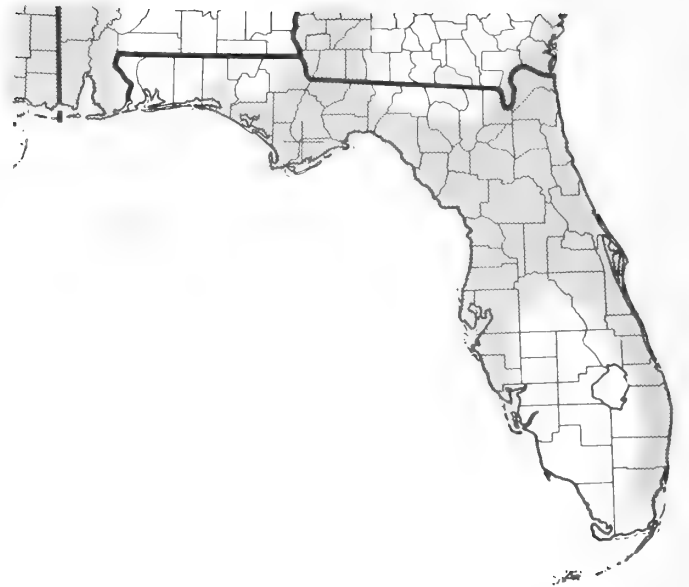
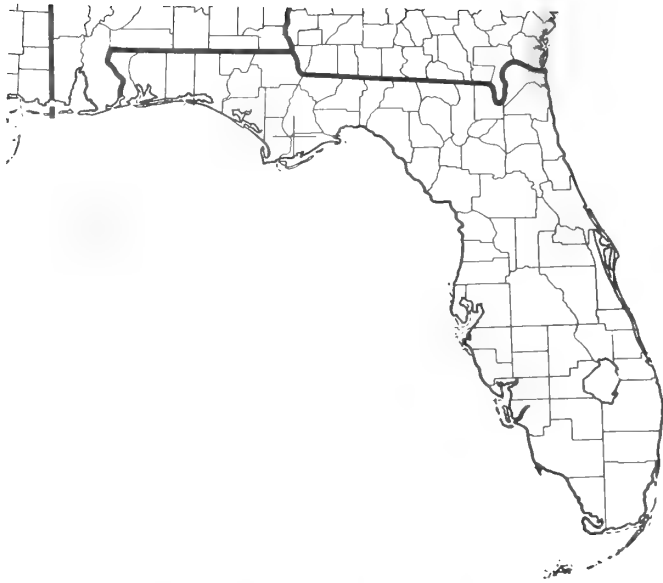


Map 145.—*Tilia caroliniana* Mill., Carolina basswood. Map 146.—*Tilia heterophylla* Vent., white basswood. Map 147.—*Toxicodendron vernix* (L.) Kuntze, poison-sumac. Map 148.—*Ulmus alata* Michx., winged elm. Map 149.—*Ulmus americana* L., American elm. Map 150.—*Ulmus crassifolia* Nutt., cedar elm.

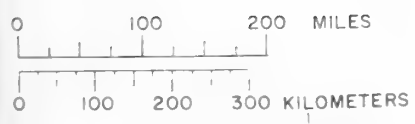
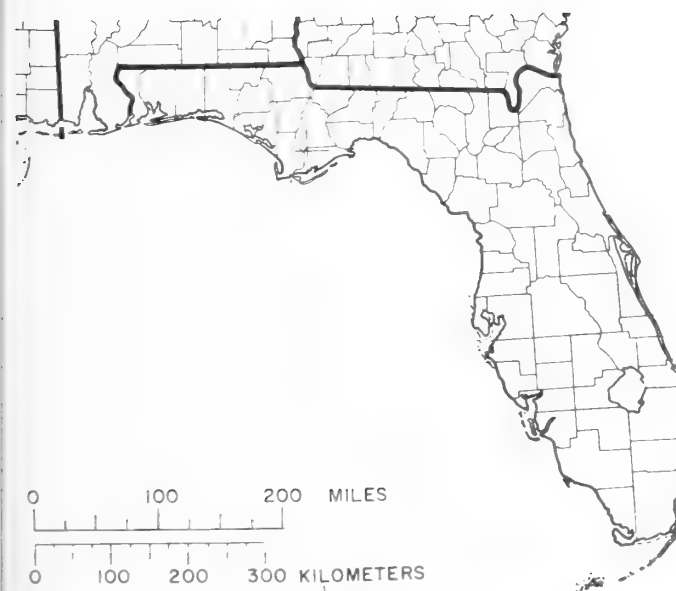
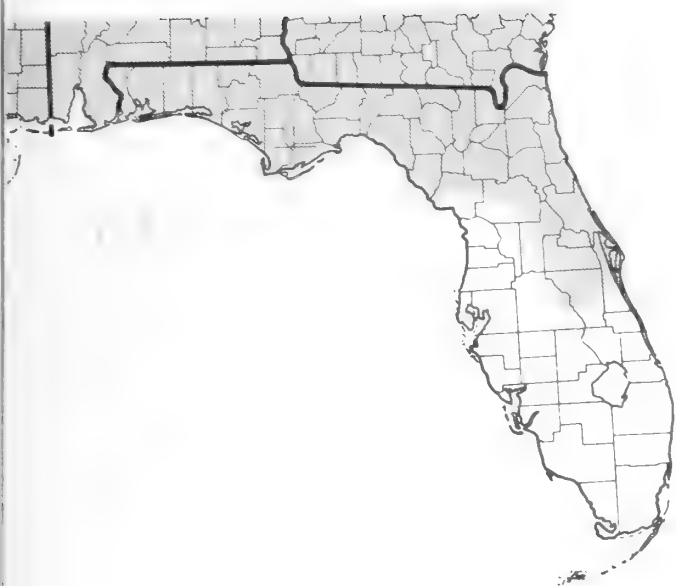




Map 151.—*Ulmus rubra* Mühl., slippery elm. Map 152.—*Vaccinium arboreum* Marsh., tree sparkleberry. Map 153.—*Viburnum nudum* L., possumhaw viburnum. Map 154.—*Viburnum obovatum* Walt., Walter viburnum. Map 155.—*Viburnum rufidulum* Raf., rusty blackhaw. Map 156.—*Yucca aloifolia* L., aloe yucca.



Map 157.—*Yucca gloriosa* L., moundlily yucca. Map 158.—*Zanthoxylum clava-herculis* L., Hercules-club. Map 158.1.—*Ilex amelanchier* M. A. Curt., sarvis holly. Map 158.2.—*Ilex longipes* Chapm., Georgia holly. Map 158.3.—*Euonymus atropurpureus* Jacq., eastern burningbush. Map 158.4.—*Magnolia tripetala* L., umbrella magnolia.



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Map 160.—*Acacia macracantha* Humb. & Bonpl. ex Willd., long-spine acacia.



Map 161.—*Acoelorrhaphe wrightii* (Griseb. & H. Wendl.) H. Wendl., paurotis-palm.



Map 162.—*Alvaradoa amorphoides* Liebmann, Mexican alvaradoa.



Map 163.—*Amphitecna latifolia* (Mill.) A. H. Gentry, black-calabash.





Map 164.—*Amyris balsamifera* L., balsam torchwood.



Map 165.—*Amyris elemifera* L., torchwood.



Map 166.—*Annona glabra* L., pond-apple.



Map 167.—*Ardisia escallonioides* Schiede & Deppe, marlberry.



Map 168.—*Avicennia germinans* (L.) L., black-mangrove.



Map 171.—*Bumelia celastrina* H.B.K., saffron-plum.



Map 172.—*Bursera simaruba* (L.) Sarg., gumbo-limbo.

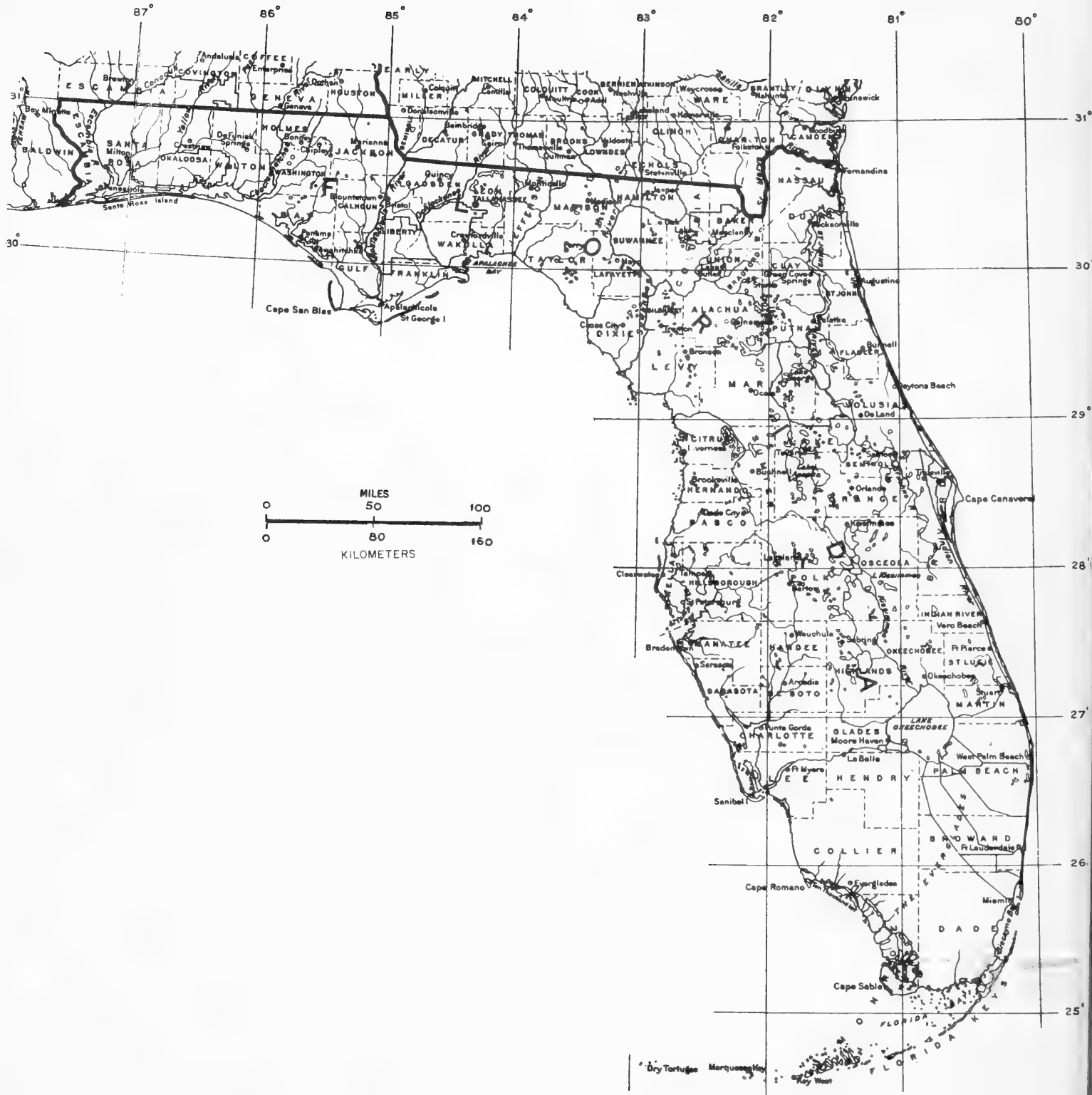


Map 173.—*Byrsonima lucida* DC., key byrsonima.





Map 174.—*Calyptanthus pallens* Griseb., pale lidflower.



Map 175.—*Calyptanthus zuzygium* (L.) Sw., myrtle-of-the-river.



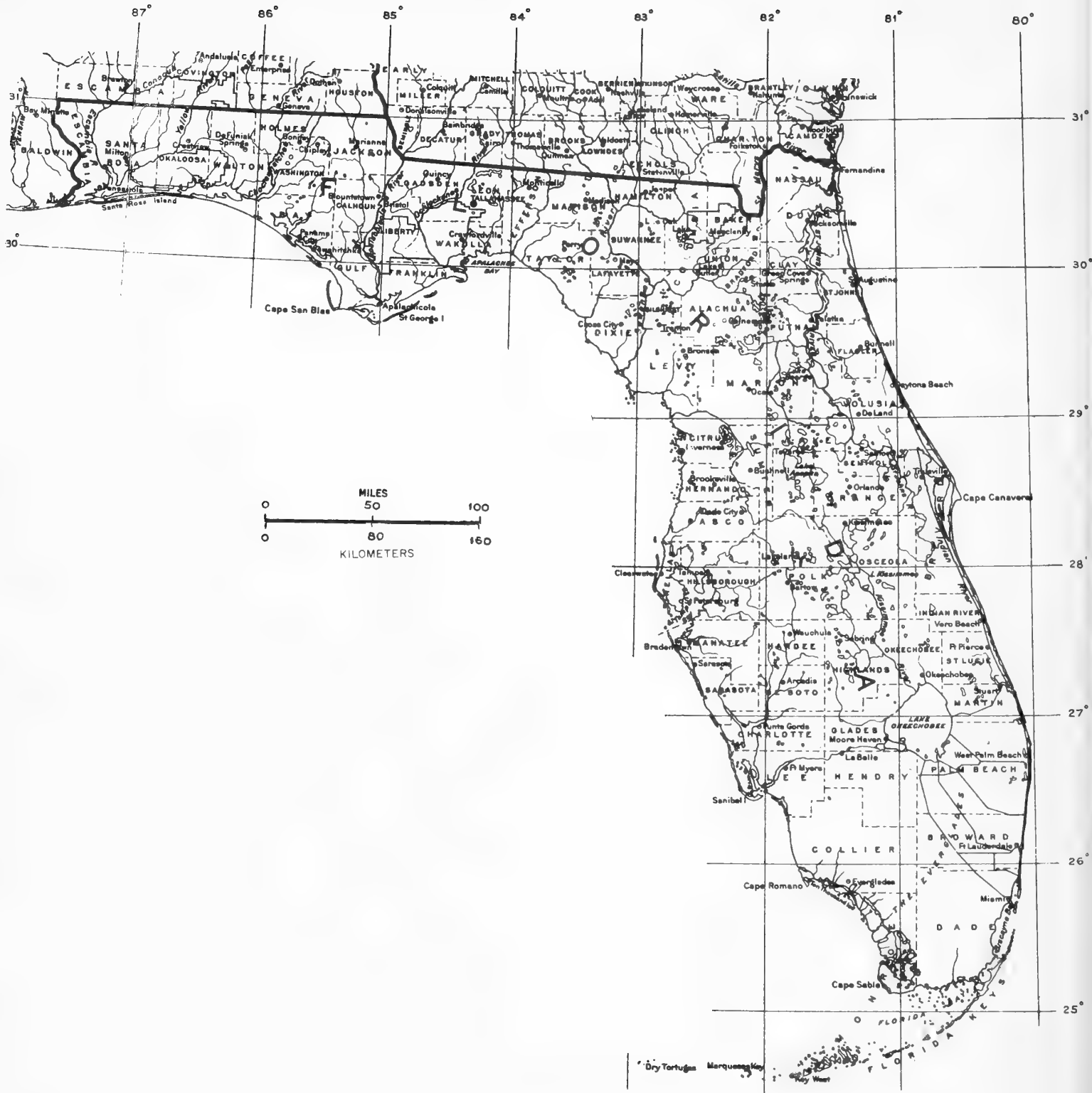
Map 176.—*Canella winterana* (L.) Gaertn., canella.



Map 177.—*Capparis cynophallophora* L., Jamaica caper.



Map 178.—*Capparis flexuosa* (L.) L., limber caper.



Map 179.—*Cereus robinii* (Lem.) L. Benson, key tree-cactus.



Map 180.—*Chrysobalanus icaco* L., cocoplum.



Map 181.—*Chrysophyllum oliviforme* L., satinleaf.





Map 182.—*Citharexylum fruticosum* L., Florida fiddlewood.



Map 183.—*Clusia rosea* Jacq., Florida clusia.



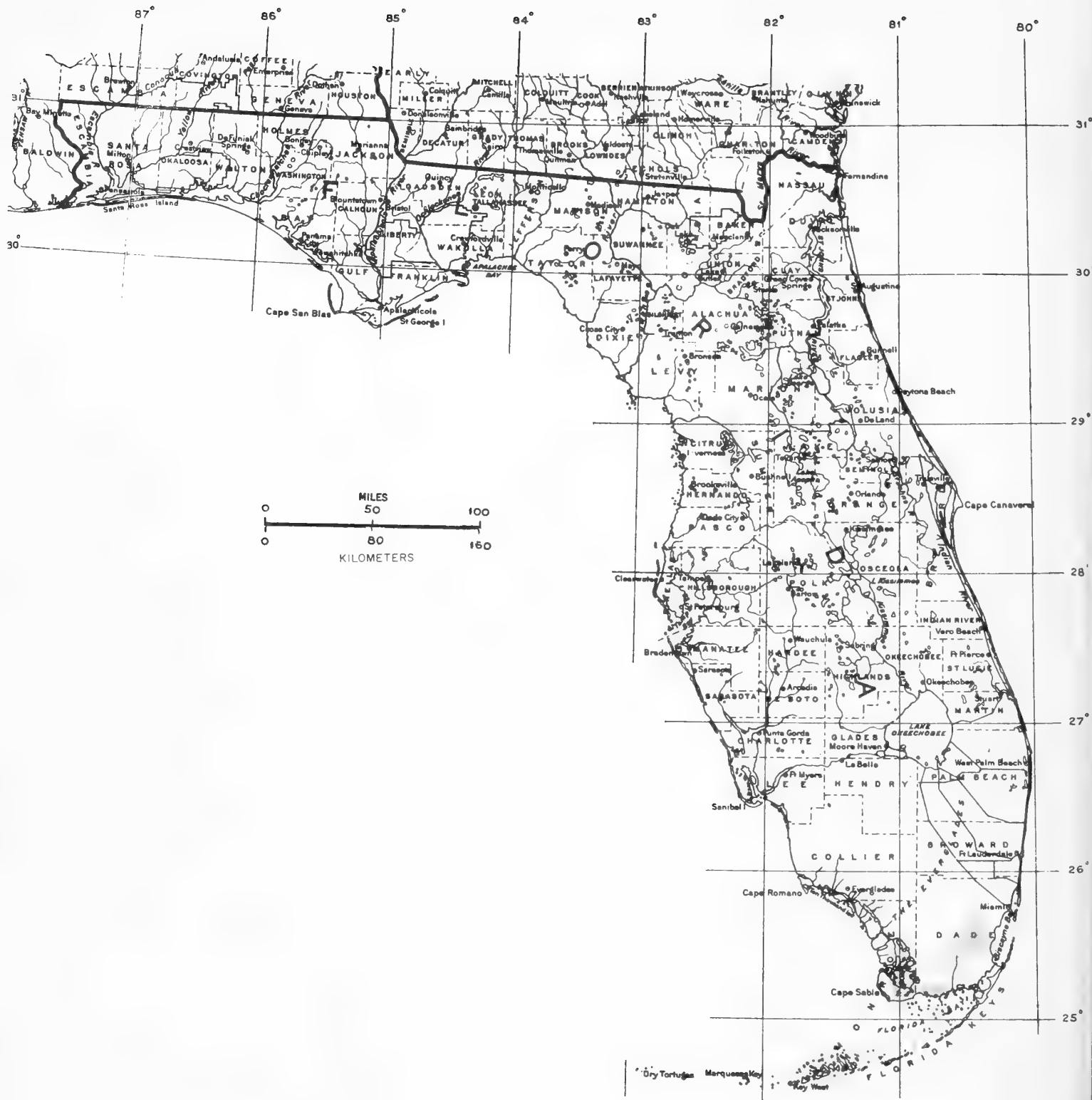
Map 184.—*Cocoloba diversifolia* Jacq., pigeon-plum.



Map 185.—*Cocoloba uvifera* (L.) L., seagrape.



Map 186.—*Coccothrinax argentata* (Jacq.) Bailey, Florida silverpalm.



Map 187.—*Colubrina arborescens* (Mill.) Sarg., coffee colubrina.



Map 188.—*Colubrina cubensis* (Jacq.) Brongn., *Cuba colubrina*.



Map 189.—*Colubrina elliptica* (Sw.) Briz. & Stern, soldierwood.





Map 190.—*Conocarpus erectus* L., button-mangrove.



Map 191.—*Cordia sebestena* L., Geiger-tree.



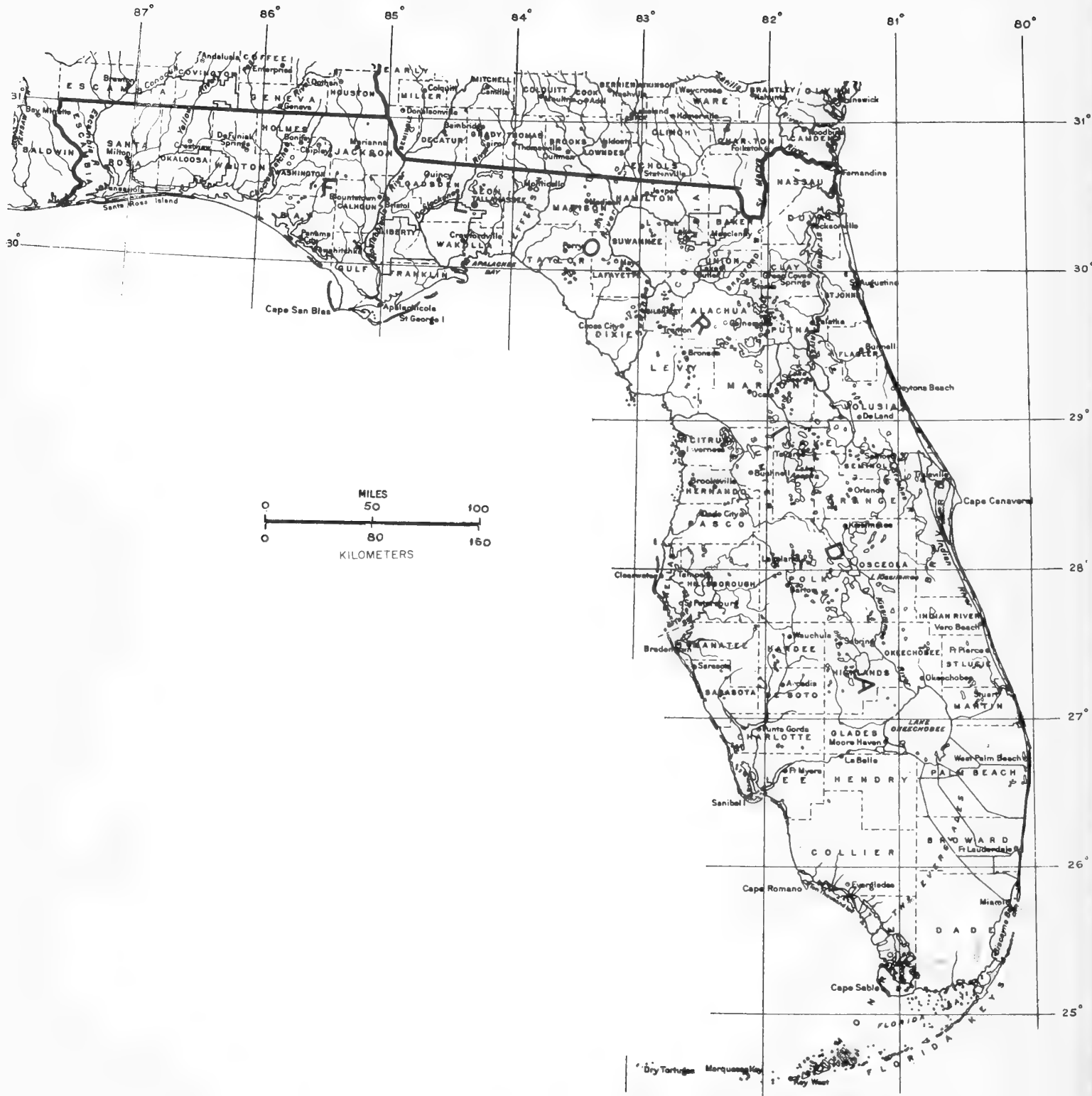
Map 192.—*Crossopetalum rhacoma* Crantz, Florida *crossopetalum*.



Map 193.—*Cupania glabra* Sw., Florida cupania.



Map 194.—*Dipholis salicifolia* (L.) A. DC., willow bastic.



Map 195.—*Dodonaea viscosa* (L.) Jacq., hopbush.



Map 196.—*Drypetes diversifolia* Krug & Urban, milkbark.

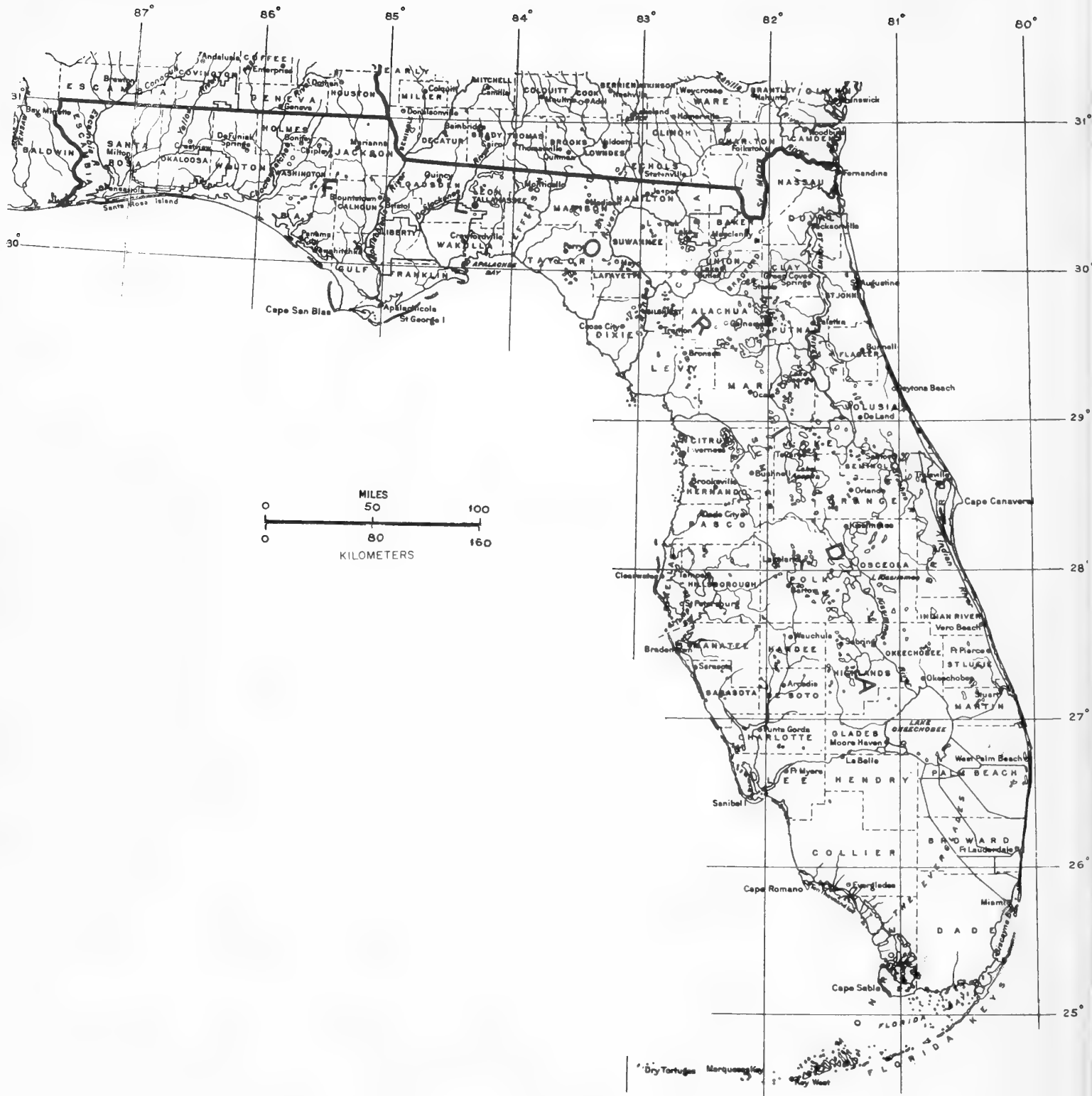


Map 197.—*Drypetes lateriflora* (Sw.) Krug & Urban, Guiana-plum.





Map 198.—*Eugenia axillaris* (Sw.) Willd., white stopper.



Map 199.—*Eugenia confusa* DC., redberry stopper.



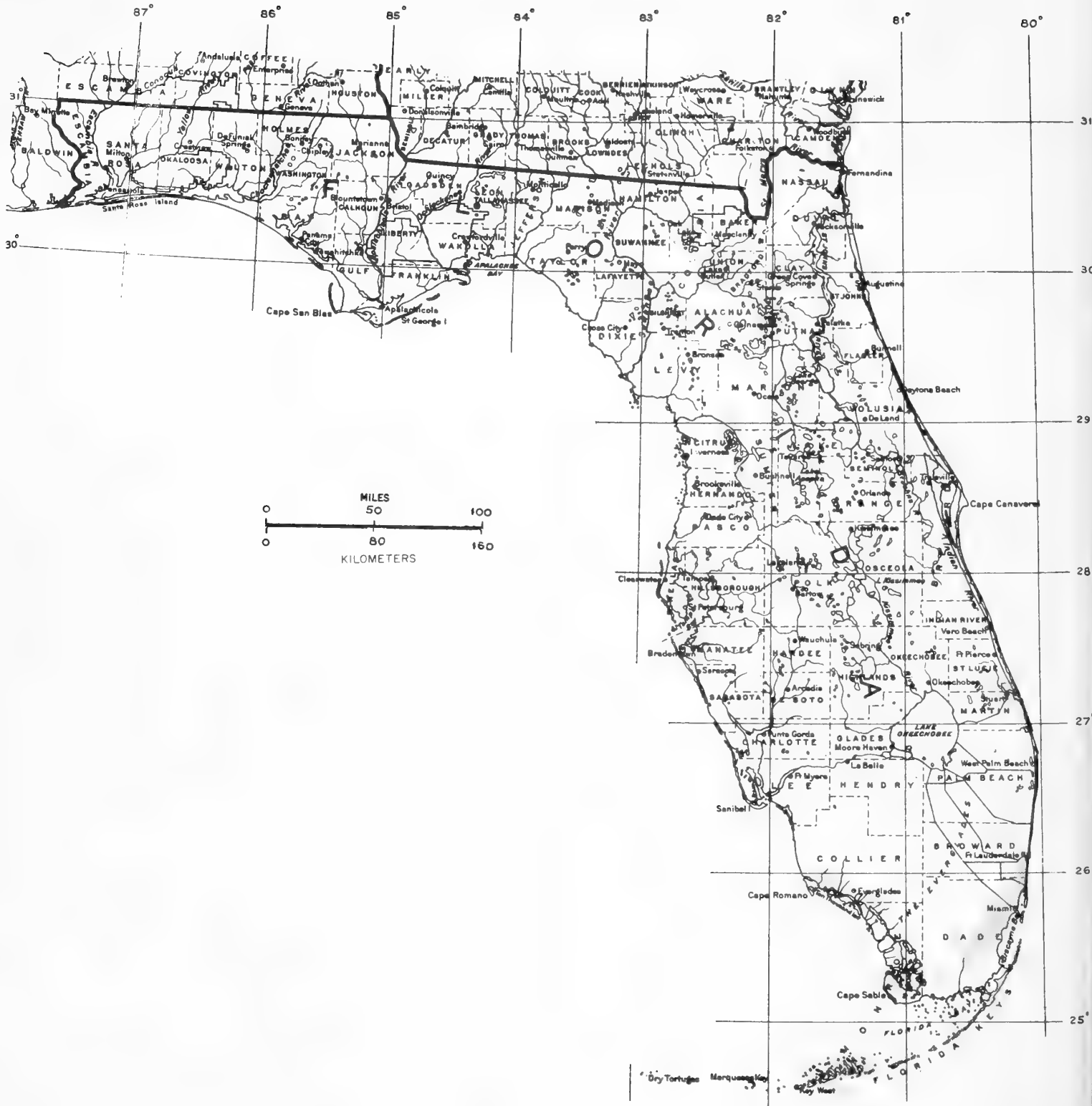
Map 200.—*Eugenia foetida* Pers., boxleaf stopper.



Map 201.—*Eugenia rhombea* (Berg) Krug & Urban, red stopper.



Map 202.—*Exostema caribaeum* (Jacq.) Roem. & Schult., princewood.



Map 203.—*Exothea paniculata* (Juss.) Radlk., inkwood.



Map 204.—*Ficus aurea* Nutt., Florida strangler fig.



Map 205.—*Ficus citrifolia* Mill., shortleaf fig.





Map 206.—*Genipa clusiiifolia* (Jacq.) Griseb., seven-year-apple.



Map 207.—*Guaiacum sanctum* L., roughbark lignumvitae.



Map 208.—*Guapira discolor* (Spreng.) Little, bolly.



Map 209.—*Guettarda elliptica* Sw., elliptic-leaf velvetseed.



Map 210.—*Guettarda scabra* (L.) Vent., roughleaf velvetseed.



Map 211.—*Gyminda latifolia* (Sw.) Urban, falsebox.



Map 212.—*Gymnanthes lucida* Sw., oysterwood.



Map 213.—*Hamelia patens* Jacq., scarletbush.





Map 214.—*Hippomane mancinella* L., manchineel.



Map 215.—*Hypelate trifoliata* Sw., hypelate.



Map 216.—*Ilex krugiana* Loes., tawnyberry holly.



Map 217.—*Jacquinia keyensis* Mez, joewood.



Map 218.—*Krugiodendron ferreum* (Vahl) Urban, leadwood.



Map 219.—*Laguncularia racemosa* (L.) Gaertn. f., white-mangrove.



Map 220.—*Licaria triandra* (Sw.) Kosterm., Florida licaria.



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Map 222.—*Manilkara bahamensis* (Baker) Lam & Meuse, wild-dilly.



Map 223.—*Mastichodendron foetidissimum* (Jacq.) Cronq., false-mastic.



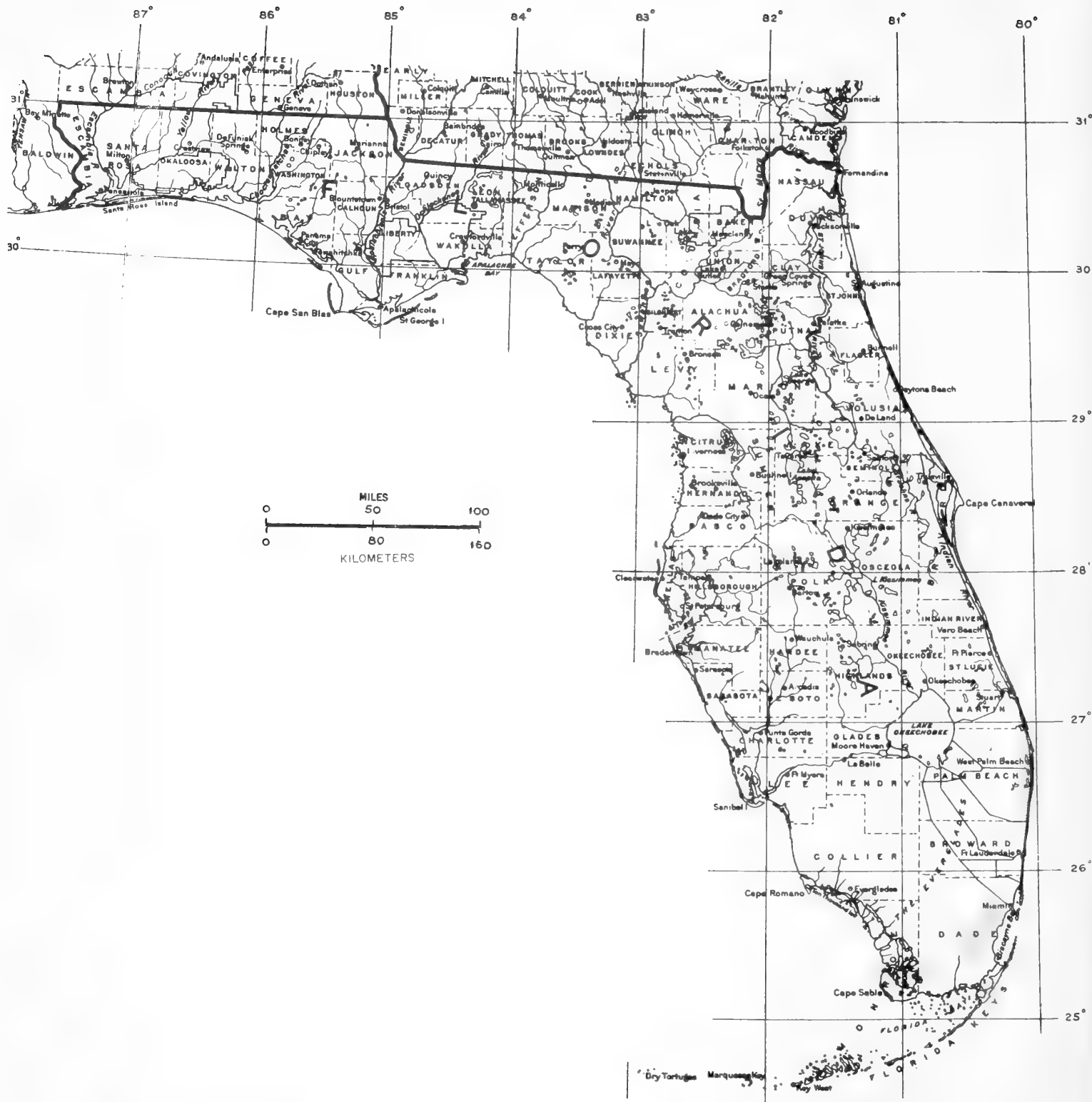
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Map 227.—*Nectandra coriacea* (Sw.) Griseb., Florida nectandra.



Map 228.—*Picramnia pentandra* Sw., bitterbush.

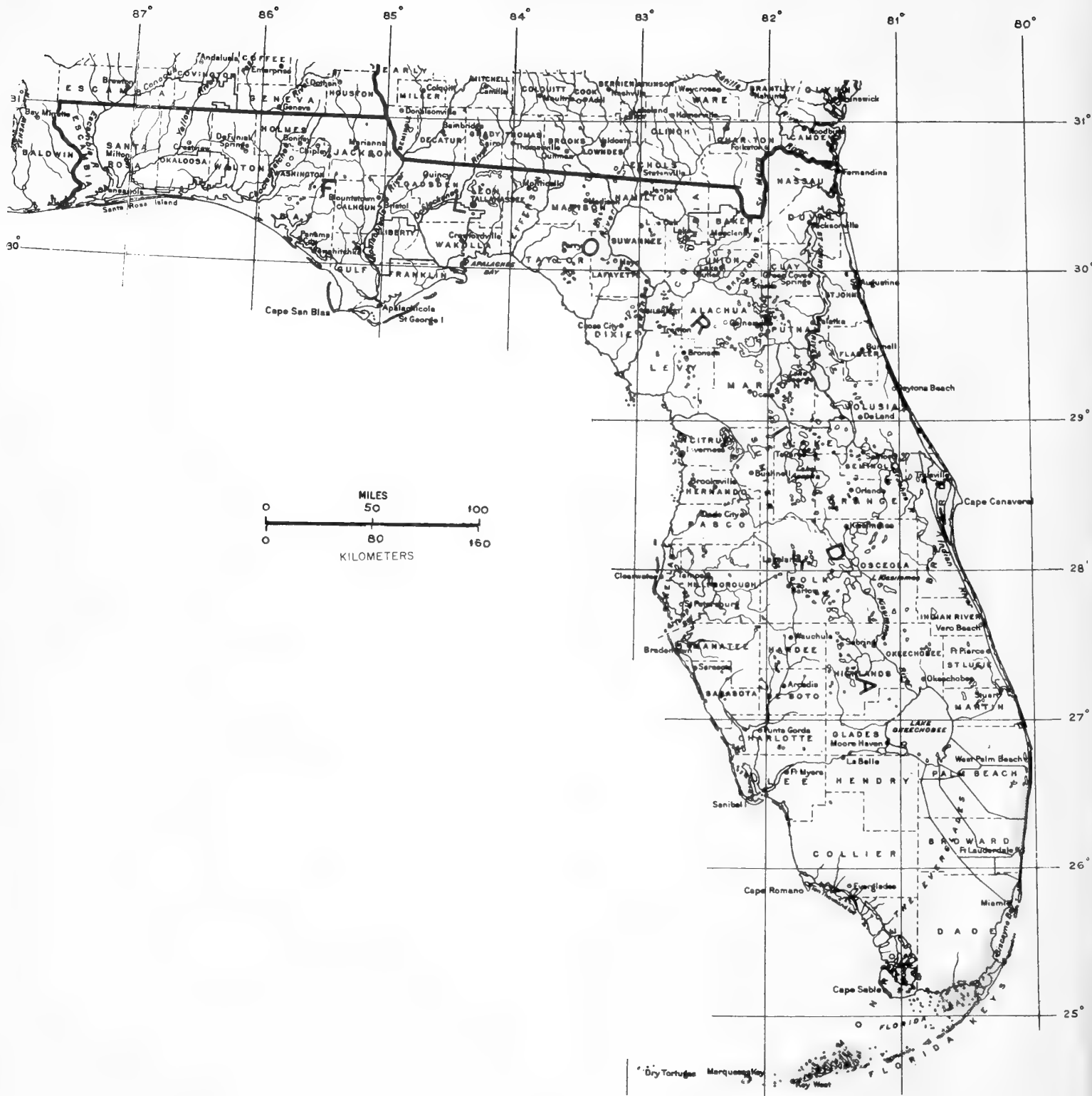


Map 229.—*Piscidia piscipula* (L.) Sarg., Florida fishpoison-tree.





Map 230.—*Pisonia rotundata* Griseb., pisonia.



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Map 236.—*Rapanea punctata* (Lam.) Lundell, Florida rapanea.



Map 237.—*Reynosia septentrionalis* Urban, darling-plum.





Map 238.—*Rhizophora mangle* L., mangrove.



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Map 248.—*Tetrazygia bicolor* (Mill.) Cogn., Florida tetrazygia.



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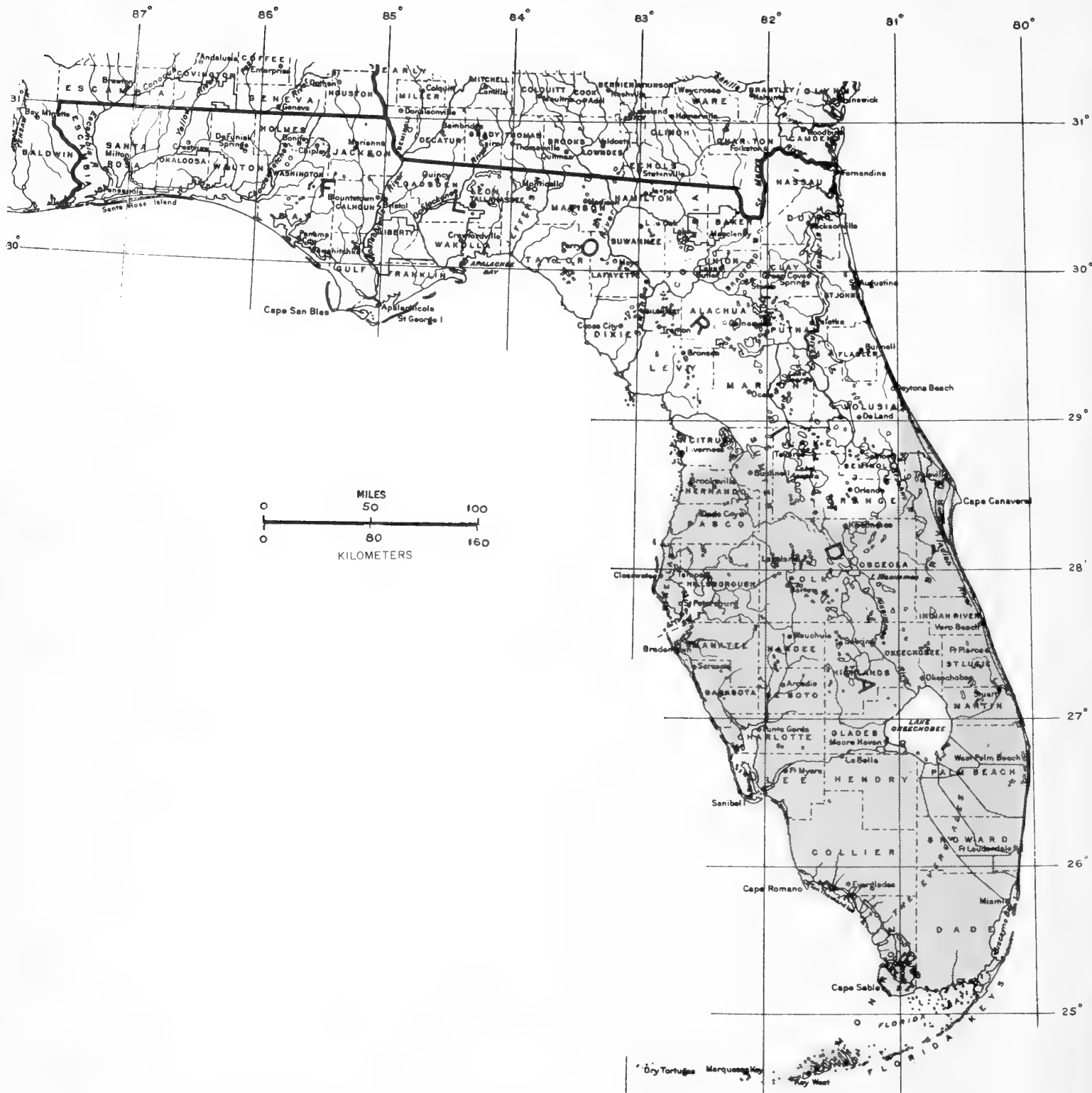


Map 253.—*Ximenia americana* L., tallowwood.





Map 254.—*Zanthoxylum coriaceum* A. Rich., Biscayne prickly-ash.



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## ABOUT THE FOREST SERVICE

As our Nation grows, people expect and need more from their forests—more wood; more water, fish and wildlife; more recreation and natural beauty; more special forest products and forage. The Forest Service of the U.S. Department of Agriculture helps to fulfill these expectations and needs through three major activities.

- Conducting forest and range research at over 75 locations ranging from Puerto Rico to Alaska to Hawaii.
- Participating with all State forestry agencies in cooperative programs to protect, improve, and wisely use our Nation's 395 million acres of State, local, and private forest lands.
- Managing and protecting the 187-million-acre National Forest System.

The Forest Service does this by encouraging use of the new knowledge that research scientists develop; by setting an example in managing, under sustained yield, the National Forests and Grasslands for multiple-use purposes; and by cooperating with all States and with private citizens in their efforts to achieve better management, protection, and use of forest resources.

For more than 70 years, the Forest Service has been serving the Nation as a leading natural resource conservation agency.









