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Potential Native Trees For Georgia Hardiness Zone 9a

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Native trees represent a great ecological bounty and a rich cultural history in Georgia. Native trees live from the mountains to the sea in many diverse habitats and under many environmental constraints. Native trees are wonderfully adapted to a local area's climate, soils, pests and other plants. What happens to tree growth ranges and survival patterns when climate changes?

Success Mapping

One standard means of describing where trees are growing and will grow, and where to plant different tree species, involves measuring the average annual minimum temperature. A map showing areas with similar minimum temperatures is termed a hardiness zone map.

Several organizations have generated these type of maps over many years, but the most cited map is the USDA Plant Hardiness Zone Map. This map is used by nurseries, planting reference manuals, and by tree selection specialists for estimating whether a tree will survive and grow in a particular area. Hardiness zone maps are periodically changed in association with changing climate temperature values.

Decade of Change

Over the last decade, average annual minimum temperatures have changed significantly across the nation and within Georgia. Figure 1. Some hardiness zones have shifted more than five counties northward in Georgia. These climate shifts have impacted, and will impact, planted tree species survival and growth, the pantheon of pests potentially damaging these trees, and existing tree and pest species, as well as exacerbating some abiotic stress problems. Tree health can be affected in significant ways by large hardiness zone shifts.

New Hardiness Zone 9a

The current (January 2012) hardiness zone map added, essentially for the first time, hardiness zone 9a to Georgia. Figure 2. All or part of five coastal counties are now included in hardiness zone 9a. Traditionally, zone 9a was considered the North-central and central Florida zone. This additional zone in Georgia represents a full 5°F increase in average annual minimum temperatures.

Hardiness zone changes will influence tree selection, new tree survival, and new pest regimes for the Georgia coast. Long term impacts of this change in hardiness zones will also shift native tree population ranges into new areas. Note this list does not include exotic tree invaders and invasives which could naturalize within zone 9a in Georgia.

Always Changing !

Change is an ecological fact of life for our forest and community trees. Climatic change will continue. Over the last 2,000 years, 20,000 years, 200,000 years, and 2 million years there have been large climatic changes impacting trees. Hardiness zone changes represent an opportunity for exploring new tree species plantings, as well as northward expanding ranges for some trees native to hardiness zone 9a.

Map Reference Sources: Note, maps contained in this publication were generalized, redrawn, and derived from the following two sources:

USDA - Plant Hardiness Zone Map (2012 New Revised Version) 2012.
USDA-Agricultural Research Service & Oregon State University.

Cathey, H.M. 2001. USDA Plant Hardiness Zone Map. Misc. Pub. #1475,
USDA-ARS-National Arboretum, Washington D.C.

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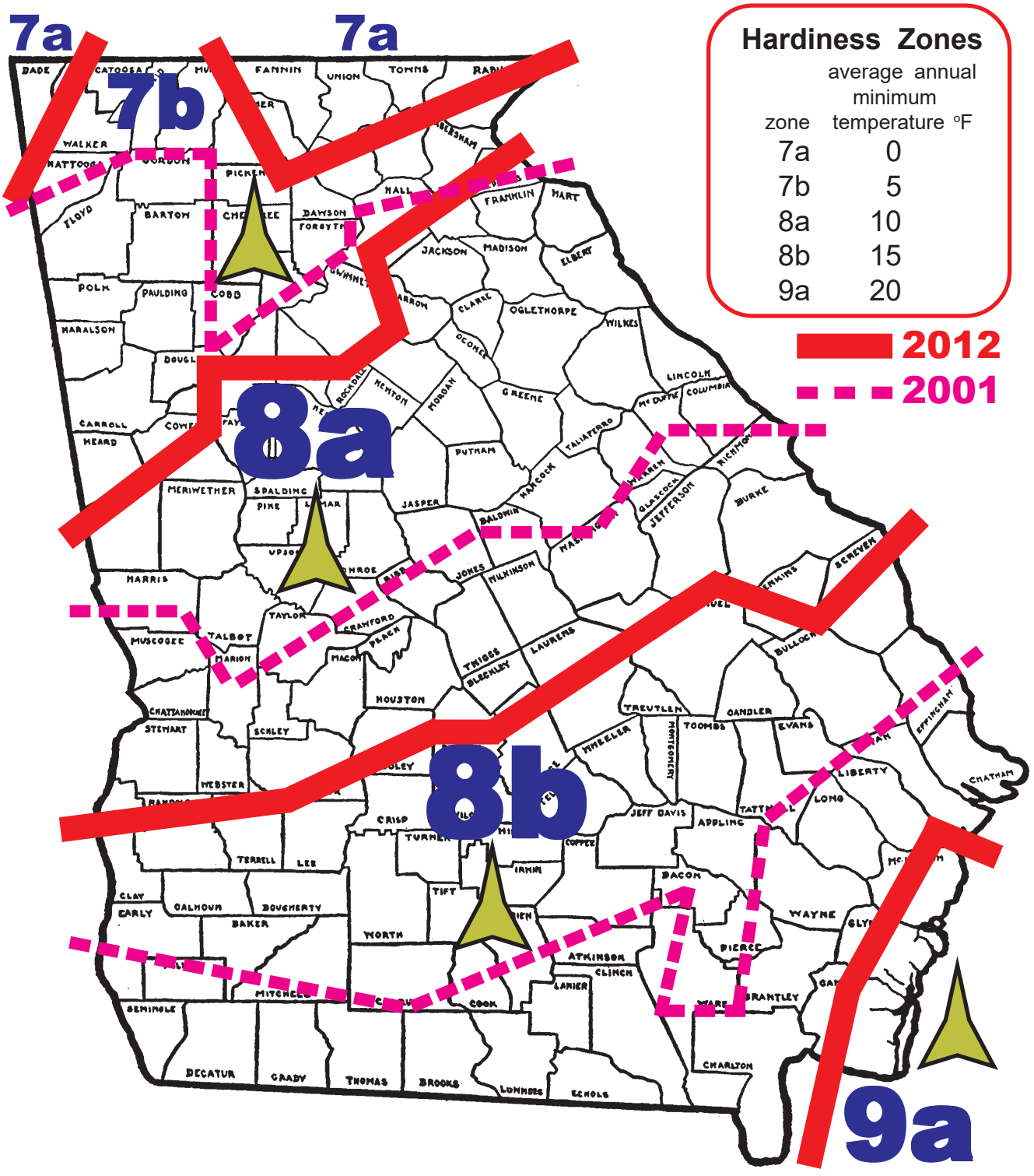

Figure 1: Changes in tree hardiness zones over the last decade in Georgia.

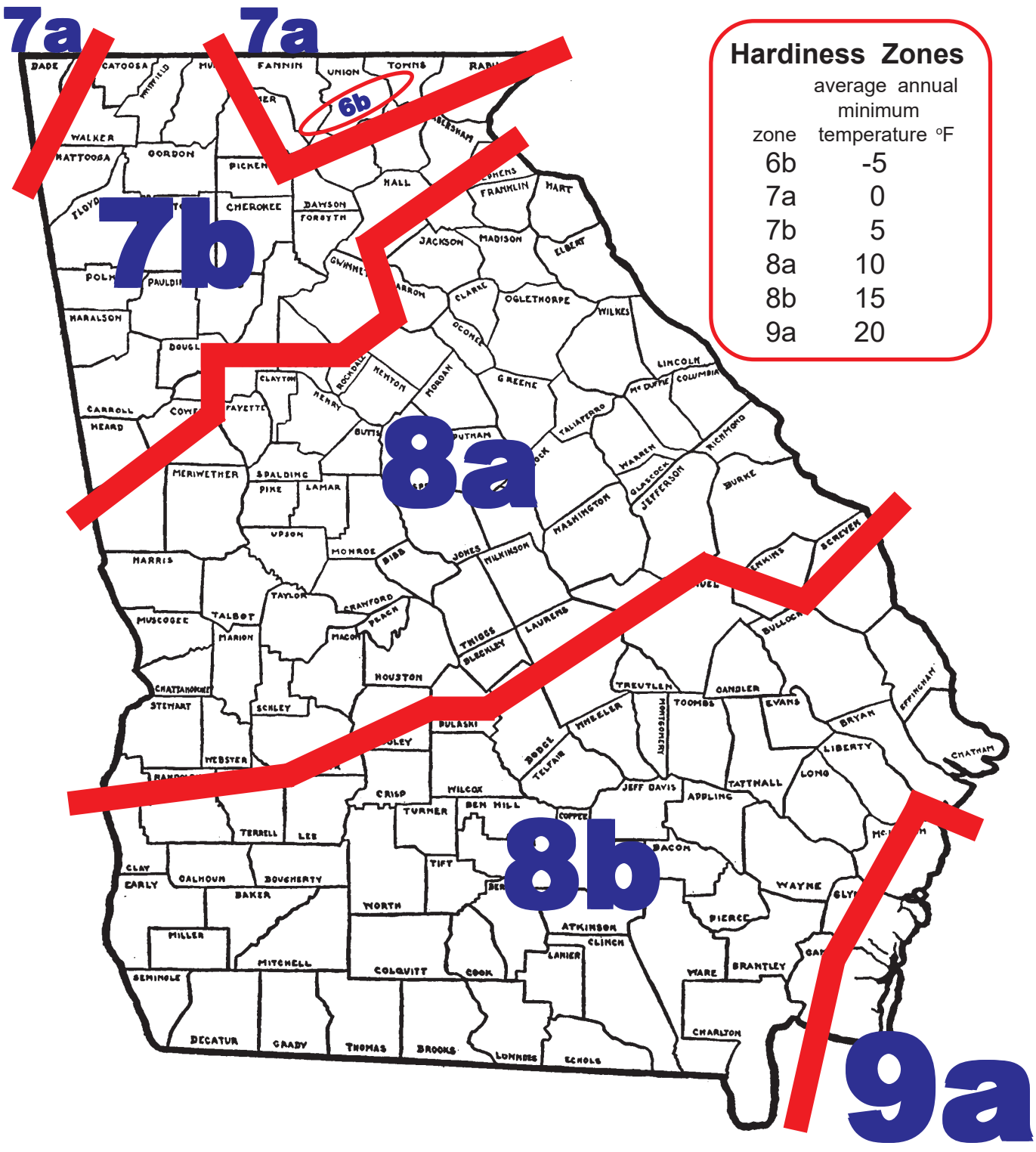

Figure 2: Change of tree hardiness zones in Georgia. Note hardiness zone 9a is new to the State.

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Figure 3: Potential native tree range expansion and tree planting list for Georgia Hardiness Zone 9a. (131 species).

scientific name	common name
Acacia farnesiana	sweet acacia
Acer rubrum	red maple
Aesculus pavia	red buckeye
Alnus serrulata	hazel alder
Aralia spinosa	devil's walkingstick
Asimina parviflora	dwarf pawpaw
Avicennia germinans	black mangrove
Baccharis halimifolia	Eastern baccharis
Betula nigra	river birch
Carpinus caroliniana	American hornbeam
Carya aquatica	water hickory
Carya floridana	Florida hickory
Carya glabra	pignut hickory
Carya tomentosa	mockernut hickory
Castanea alnifolia	Florida chinkapin
Castanea pumila	chinquapin
Celtis laevigata	sugarberry
Cephalanthus occidentalis	buttonbush
Chamaecyparis thyoides	Atlantic whitecedar
Chionanthus virginicus	fringetree
Cliftonia monophylla	buckwheat tree
Cornus asperifolia	stiff-cornel dogwood
Cornus florida	flowering dogwood
Cornus foemina	stiff dogwood
Cornus stricta	swamp dogwood
Crataegus aestivalis	mayhaw
Cyrilla parvifolia	littleleaf titi
Cyrilla racemiflora	swamp titi
Diospyros virginiana	persimmon
Erythrina herbacea	Eastern coralbean
Eugenia axillaris	white stopper
Forestiera acuminata	swamp-privet
Forestiera segregata	Florida-privet
Franklinia alatamaha	Franklin tree
Fraxinus caroliniana	Carolina ash
Fraxinus pennsylvanica	green ash
Fraxinus profunda	pumpkin ash
Gleditsia aquatica	water-locust
Gordonia lasianthus	loblolly bay
Halesia diptera	two-wing silverbell
Hamamelis virginiana	American witch-hazel
Ilex ambigua	Carolina holly
Ilex amelanchier	sarvis holly
Ilex cassine	dahoon
Ilex coriacea	large gallberry
Ilex decidua	possumhaw
Ilex longipes	Georgia holly
Ilex myrtifolia	myrtle dahoon
Ilex opaca	American holly
Ilex vomitoria	yaupon
Illicium parviflorum	yellow anisetree
Juniperus silicicola	Southern redcedar
Juniperus virginiana	Eastern redcedar
Leitneria floridana	corkwood
Liquidambar styraciflua	sweetgum
Liriodendron tulipifera	yellow-poplar
Lyonia ferruginea	staggerbush
Magnolia grandiflora	Southern magnolia
Magnolia virginiana	sweetbay
Morus rubra	red mulberry
Myrica cerifera	wax-myrtle
Myrica heterophylla	evergreen bayberry
Nyssa aquatica	water tupelo
Nyssa biflora	swamp tupelo
Nyssa ogeche	Ogeeche-lime
Nyssa sylvatica	blackgum

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scientific name	common name
Osmanthus americanus	devilwood
Persea borbonia	red-bay
Persea palustris	swamp-bay
Pinckneya bracteata	fevertree
Pinus clausa	sand pine
Pinus elliottii	slash pine
Pinus glabra	spruce pine
Pinus palustris	longleaf pine
Pinus serotina	pond pine
Pinus taeda	loblolly pine
Planera aquatica	planertree
Platanus occidentalis	American sycamore
Populus heterophylla	swamp cottonwood
Prunus alabamensis	Alabama cherry
Prunus angustifolia	Chickasaw plum
Prunus caroliniana	laurelcherry
Prunus serotina	black cherry
Prunus umbellata	flatwoods plum
Ptelea trifoliata	hoptree
Quercus alba	white oak
Quercus austrina	bluff oak
Quercus chapmanii	Chapman oak
Quercus falcata	Southern red oak
Quercus geminata	sand live oak
Quercus hemisphaerica	laurel oak
Quercus incana	bluejack oak
Quercus laevis	turkey oak
Quercus laurifolia	swamp laurel oak
Quercus lyrata	overcup oak
Quercus margaretta	sand post oak
Quercus marilandica	blackjack oak
Quercus michauxii	swamp chestnut oak
Quercus minima	dwarf live oak
Quercus myrtifolia	myrtle oak
Quercus nigra	water oak
Quercus pagoda	cherrybark oak
Quercus shumardii	Shumard's oak
Quercus stellata	post oak
Quercus virginiana	live oak
Rhus copallinum	winged sumac
Sabal palmetto	cabbage palmetto
Salix caroliniana	Coastal Plain willow
Salix floridana	Florida willow
Sambucus canadensis	American elder
Sambucus simpsonii	Southern elder
Sapindus marginatus	Florida soapberry
Sapindus saponaria	wingleaf soapberry
Sassafras albidum	sassafras
Serenoa repens	saw-palmetto
Sideroxylon tenax	tough bumelia
Stewartia malacodendron	silky camellia
Styrax americanus	American snowbell
Symplocos tinctoria	sweetleaf
Taxodium ascendens	pond-cypress
Taxodium distichum	bald-cypress
Tilia caroliniana	Carolina basswood
Tilia heterophylla	white basswood
Ulmus americana	American elm
Vaccinium arboreum	farkleberry
Viburnum obovatum	small-leaf arrowwood
Ximenia americana	tallowwood
Yucca aloifolia	Spanish-bayonet
Yucca gloriosa	moundlilly yucca
Zanthoxylum clava-herculis	Hercules-club
Zanthoxylum fagara	lime prickly-ash