FOREST WINNERS AND LOSERS – HIGHER EMISSIONS (A1F1 SCENARIO)

WINNERS

Substantial Increases

American elm
American hornbeam
Bitternut hickory
Black locust
Black oak
Black walnut
Black willow
Boxelder
Eastern cottonwood
Eastern redbud
Hackberry
Red mulberry
River birch
Shagbark hickory
Silver maple
Slippery elm
White oak
Wild plum

Smaller Increases

American basswood
American beech
Black cherry
Bur oak
Eastern hophornbeam
Swamp white oak
White ash

LOSERS

Substantial Declines

Balsam fir
Black spruce
Butternut
Chokecherry
Mountain maple
Paper birch
Pin cherry
Quaking aspen
White spruce
Yellow birch

Smaller Declines

Black ash
Eastern white pine
Jack pine
Northern white-cedar
Sugar maple
Tamarack

LITTLE CHANGE

Green ash
Northern red oak
Red pine

NOT SURE

Balsam poplar
Bigtooth aspen
Eastern hemlock
Northern pin oak
Red maple

NEW COMERS

Black hickory
Blackgum
Blackjack oak
Chestnut oak
Chinkapin oak
Common persimmon
Eastern redcedar
Flowering dogwood
Gray birch
Honeylocust
Hickory
Northern catalpa
Ohio buckeye
Osage-orange
Pin oak
Post oak
Sassafras
Scarlet oak
Shingle oak
Sugarberry
Sweet birch
Sweetgum
Sycamore
Yellow-poplar

Source: Janowiak, M.K.; et al. 2014. **Forest ecosystem vulnerability assessment and synthesis for northern Wisconsin and western Upper Michigan: a report from the Northwoods Climate Change Response Framework**. Newtown Square, PA: U.S. Department of Agriculture, Forest Service, Northern Research Station . GTR-NRS-136. http://www.nrs.fs.fed.us/pubs/46393