

Appendices

Appendix A, Part 1 - IFMAP Classification List (Cover Types)

Appendix A, Part 2 - IFMAP Classification Rules

Appendix B - NED Forest Types

Appendix A, Part 1 - IFMAP Classification List

1 Urban
11 Low Intensity Urban
12 High Intensity Urban
121 Airport
122 Roads/Parking Lot
123 Other High Intensity Urban
2 Agricultural
21 Herbaceous Agriculture
211 Cropland
2111 Non-vegetated Farmland
2112 Row Crop
2113 Forage Crop
2114 Other Cropland
212 Non-tilled Herbaceous Agriculture
22 Non Herbaceous Agriculture
221 Christmas tree plantation
222 Orchard/Vineyard/Nursery
3 Upland Openland
310 Herbaceous Openland
3101 Poverty Grass, Cladonia
3102 Grass
31021 Cool Season Grass
31022 Warm Season Grass
3103 Rubus, Fern
3104 Degraded
3105 Mixed Upland Herbaceous
320 Upland Shrub
3201 Sweet Fern
3202 Autumn Olive/Honeysuckle
3203 Upland Blueberry
3204 Mast Producing Shrub
3205 Mixed Upland Shrub
330 Low Density Trees
3301 Low Density Deciduous Trees
3302 Low Density Conifer Trees
3303 Mixed Low Density Trees
350 Parks/Golf Courses

4 Upland Forest

41 Upland Deciduous Forest

411 Northern Hardwood

- 4110 Sugar Maple Association
- 4111 Sugar Maple, Hard Mast Association
- 4112 Maple Association
- 4113 Red Maple, Conifer
- 4114 Beech, Hemlock
- 4115 Yellow Birch, Hemlock
- 4116 Mixed Northern Hardwood – Aspen
- 4117 Mixed Northern Hardwood - Pine
- 4119 Mixed Northern Hardwoods

412 Oak

- 4120 Oak, Hickory
- 4121 Oak, Aspen
- 4122 Oak, Pine
- 4123 Red Oak
- 4124 Red with White Oak
- 4125 Black, Northern Pin Oak
- 4126 White, Black, Northern Pin Oak
- 4129 Mixed Oak

413 Aspen

- 4130 Aspen
- 4131 Aspen, Oak
- 4132 Aspen, Jack Pine
- 4133 Aspen, Mixed Pine
- 4134 Aspen, Spruce/Fir
- 4135 Aspen, Cedar
- 4136 Aspen, Mixed Conifer
- 4137 Aspen, Birch
- 4139 Aspen, Mixed Deciduous

414 Other Upland Deciduous

- 4140 Other Single Species (refer to database to see species breakdown)

419 Mixed Upland Deciduous

- 4190 Mixed Upland Deciduous with Cedar
- 4191 Mixed Upland Deciduous with Conifer
- 4192 Mixed Southern Upland Deciduous
- 4193 Birch, Aspen
- 4199 Other Mixed Upland Deciduous

42 Upland Coniferous Forest

421 Planted Pines

4210 Planted White Pine types

42100 Planted White Pine

42101 Planted White Pine, Mixed Deciduous

4211 Planted Red Pine types

42110 Planted Red Pine

42111 Planted Red Pine, Mixed Deciduous

4212 Planted Jack Pine

42120 Planted Jack Pine

42121 Planted Jack Pine, Mixed Deciduous

4213 Planted Scotch Pine types

42130 Planted Scotch Pine

4214 Planted Mixed Pine types

42140 Planted Mixed Pine

42141 Planted Mixed Pine, Mixed Deciduous

422 Natural Pines

4220 Natural White Pine types

42200 Natural White Pine

42201 Natural White Pine, Mixed Deciduous

4221 Natural Red Pine Types

42210 Natural Red Pine

42211 Natural Red Pine, Mixed Deciduous

4222 Natural Jack Pine types

42220 Natural Jack Pine

42221 Natural Jack Pine, Mixed Deciduous

4226 Natural Mixed Pine Types

42290 Natural Mixed Pine

42250 Natural Pine, Oak

42260 Natural Mixed Pine, Mixed Deciduous

423 Other (Non-Pine) Upland Conifers

Planted Upland Conifers

42300 Planted Larch, Mixed Deciduous

42301 Planted Larch

42310 Planted Spruce

42311 Planted Spruce, Mixed Deciduous

Non-planted Upland Conifers

- 42320 Upland Spruce
- 42330 Upland Fir
- 42340 Upland Spruce/Fir
- 42350 Upland Hemlock
- 42360 Upland Cedar
- 42370 Upland Cedar, Aspen
- 42380 Non-Pine Upland Conifer, Mxd Deciduous
- 42390 Mixed Non-Pine Upland Conifers

429 Mixed Upland Conifers

43 Upland Mixed Forest

- 4310 Pine, Oak Mix
- 4311 Pine, Aspen Mix
- 4312 Hemlock, Mixed Deciduous
- 4319 Mixed Upland Forest

5 Water

50 Water

6 Wetlands

61 Lowland Forest

611 Lowland Deciduous Forest

- 6110 Cottonwood
- 6111 Lowland Balsam Poplar
- 6112 Lowland Aspen
- 6113 Lowland Maple
- 6114 Lowland Oak
- 6115 Lowland Ash
- 6116 Lowland Birch
- 6117 Lowland Deciduous, Mixed Coniferous
- 6118 Lowland Deciduous with Cedar
- 6119 Mixed Lowland Deciduous Forest

612 Lowland Coniferous Forest

- 6120 Lowland Cedar
- 6121 Tamarack
- 6122 Black Spruce
- 6123 Lowland Fir
- 6124 Lowland Spruce-Fir
- 6125 Lowland Black Spruce, Jack Pine
- 6126 Lowland Jack Pine
- 6127 Lowland Pine
- 6128 Lowland Coniferous, Mixed Deciduous

6129 Mixed Coniferous Lowland Forest

613 Lowland Mixed Forest

6130 Fir, Aspen, Maple

6131 Hemlock, White Pine, Maple, Birch

6132 Mixed Lowland Forest with Cedar

6139 Mixed Lowland Forest

62 Nonforested Wetlands

621 Floating Aquatic

622 Lowland Shrub

6220 Alder/Willow

6221 Fen

6222 Shrub-Carr

6223 Inundated Shrub Swamp

6224 Treed Bog

6225 Bog

6229 Mixed Lowland Shrub

623 Emergent Wetland

6230 Cattail

6231 Phragmites

6232 Wet Prairie

6233 Wet Meadow

6239 Mixed Emergent Wetland

629 Mixed Non-forest Wetland

7 Bare/Sparsely Vegetated

710 Sand, Soil

720 Exposed Rock

730 Mud Flats

790 Other Bare/Sparsely Vegetated

Appendix A, Part 2 - IFMAP Classification Rules

IF GREATER THAN 10% of the land area is covered with man-made structures including parking lots and paved or gravel roads THEN

Urban (1)

IF URBAN and GREATER THAN >25% of the land area is solid impervious cover from man-made materials THEN

High Intensity Urban (12)

IF High Intensity Urban within airport grounds including runways THEN

Airport (121)

IF High Intensity Urban, NOT Airport, but IS road or parking lot THEN

Road/Parking Lot (122)

ELSE (is High Intensity Urban but not above)

Other High Intensity Urban (123)

ELSE (i.e. URBAN and LESS THAN 25% is solid impervious cover)

Low Intensity Urban (11)

ELSE IF land area has > 75% open water THEN

Water (5)

ELSE IF the vegetation is intensively managed for vegetation production excluding forestry THEN

Agriculture (2)

IF AGRICULTURE and LESS THAN 25% of the vegetation is woody THEN

Herbaceous Agriculture (21)

IF Herbaceous Agriculture is tilled for crop production THEN

Cropland (211)

IF Cropland and LESS THAN 25% of land area is vegetated THEN

Non-vegetated Farmland (2111)

IF Cropland and GREATER THAN 25% vegetated, and vegetation is annual crops planted in rows (e.g. corn, soybeans, etc) THEN

Row Crops (2112)

IF Cropland, not above, and vegetation is used for fodder production, alfalfa and hay, THEN

Forage Crops (2113)

ELSE **Other Cropland (2114)**

ELSE IF Herbaceous Agriculture and vegetation is not tilled (includes pasture) THEN

Non-tilled Herbaceous Agriculture (212)

ELSE (Agriculture and GREATER THAN 25% of the vegetation is woody) THEN

Non Herbaceous Agriculture (22)

IF woody trees are grown for Christmas tree production THEN

Christmas trees (221)

ELSE **Orchards/Vineyards/Nursery (222)**

ELSE IF the ground area is LESS THAN 25% vegetated THEN

Bare / Sparsely Vegetated (7)

IF formed from sand or bare soil THEN

Sand, Soil (710)

ELSE IF formed from solid rock THEN

Exposed Rock (720)

ELSE IF periodically flooded THEN

Mud Flats (730)

ELSE **Other Bare/Sparsely Vegetated (790)**

ELSE IF LESS THAN 25% of the ground is covered by tree canopy AND there is no evidence of flooding during the past 5 years AND NOT supporting lowland indicator plants THEN

Upland Openland (3)

IF maintained for recreational purposes THEN

Parks and Golf Courses (350)

<p>ELSE IF GREATER THAN 15% of the ground is covered by tree canopy then Low-Density Trees (330) IF AT LEAST 60% tree canopy is in Deciduous species THEN Low Density Deciduous Trees (3301) ELSE IF AT LEAST 60% tree canopy is in Coniferous species then Low Density Coniferous Trees (3302) ELSE IF low density trees but not above THEN Mixed Low Density Trees (3303)</p>
<p>ELSE IF the combination of woody shrubs/trees total GREATER THAN 25% of the canopy THEN Upland Shrub (320) IF AT LEAST 25% of the ground is covered by sweet fern THEN Sweet Fern (3210) ELSE IF AT LEAST 50% of the ground is covered by autumn olive/honeysuckle THEN Autumn Olive/Honeysuckle (3202) ELSE IF AT LEAST 50% of the ground is covered by blueberry THEN Upland Blueberry (3203) ELSE IF AT LEAST 25% of the ground is covered by mast producing shrubs (cherry spp., juneberry, hazel, dogwood, hawthorn, wild plum) THEN Mast Producing Shrub (3204) ELSE Mixed Upland Shrub (3205)</p>
<p>ELSE IF LESS THAN OR EQUAL TO 25% of the canopy is in woody shrubs or trees THEN Herbaceous Openland (310) IF the ground cover is AT LEAST 60% poverty grass, sweet fern, blueberry, and/or cladonia THEN Poverty Grass, Cladonia (3101) ELSE IF AT LEAST 60% of the herbaceous cover is grass THEN Grass (3102) IF AT LEAST 60% of the herbaceous cover is cool season grass/ legume (orchard grass, fescue, timothy, clover, vetch) THEN Cool Season Grass (310121) ELSE Warm Season Grass (31022) ELSE IF AT LEAST 60% of the herbaceous cover is bracken fern, strawberry, or raspberry/blackberry then Rubus-Fern (3103) ELSE IF AT LEAST 60% of the ground cover is exposed gravel or sand, spotted knapweed, St John's-wort, or other invasive exotics THEN Degraded (3104) ELSE Mixed Upland Herbaceous (3140)</p>
<p>ELSE IF LESS THAN 25% of the ground is covered by tree canopy AND either there IS evidence of flooding during the past 5 years OR supporting lowland indicator plants THEN Non-forested Wetlands (62) IF AT LEAST 60% of the non-water ground cover is floating aquatic vegetation THEN Floating Aquatic (621) ELSE IF AT LEAST 60% of the non-water ground cover is shrub THEN Lowland Shrub (622) IF AT LEAST 60% of the cover is Alder (<i>alnus</i>) or Willow (<i>salix</i>) THEN Alder/Willow (6220) ELSE IF AT LEAST 60% is Shrubby cinquefoil (<i>Potentilla fruticosa</i>), Dogwood (<i>Cornus</i>), Willow (<i>Salix</i>), Sedge (<i>Carex</i>) and/or Sphagnum/Peat moss (<i>Sphagnum</i>) then Fen (6221) ELSE IF AT LEAST 30% is Dogwood (<i>Cornus</i>) and/or Michigan Holly (<i>Ilex verticillata</i>) THEN Shrub-Carr (6222)</p>

ELSE IF AT LEAST 30% Button bush (*Cepalanthus*), Water Plantain (*Alisma*), Smartweed (*Polygonum*), Cattail (*Typha*) THEN
Inundated Shrub Swamp (6223)
 ELSE IF AT LEAST 30% is evergreen shrubs, Sphagnum/Peat moss (*Sphagnum*) THEN bog
 IF AT LEAST 10% of the cover is trees THEN
Treed Bog (6224)
 ELSE
Bog (6225)
 ELSE **Mixed Lowland Shrub (6229)**
 ELSE IF AT LEAST 60% of the non-water ground cover is non-woody vegetation THEN
Emergent Wetland (623)
 IF AT LEAST 60% of the cover is cattail (*typha spp*) THEN
Cattail (6230)
 ELSE IF AT LEAST 60% *Phragmites* THEN
Phragmites (6231)
 ELSE IF AT LEAST 30% native warm season grasses including Big bluestem, Little bluestem, Broom sedge (*Andropogon spp.*), Indian grass (*Sorghastrum nutans*) THEN
Wet Prairie (6232)
 ELSE IF AT LEAST 60% is sedges and grasses including Sedge (*Carex*), Bulrush (*Scirpus*), Reed grass (*Calamagrostis*), Reed canary grass (*Phalaris arundinaceae*), native warm season grasses (see above) THEN
Wet Meadow (6233)
 ELSE **Mixed Emergent Wetland (6239)**
 ELSE **Mixed Non-Forest Wetland (629)**

ELSE IF AT LEAST 25% of the ground is covered by tree crowns - FOREST

IF NO evidence of flooding during the past 5 years AND not supporting lowland indicator plants THEN

Upland Forest (4)

IF AT LEAST 60% of the tree canopy is deciduous THEN

Upland Deciduous Forest (41)

IF AT LEAST 60% is Maple + Beech + Basswood + White Ash + Cherry + Yellow Birch THEN

Northern Hardwood (411)

IF AT LEAST 80% is Sugar Maple + Basswood + White Ash + Cherry THEN

Sugar Maple Association (4110)

ELSE IF AT LEAST 60% is (Sugar Maple + Basswood) AND AT LEAST 10% is (Beech + Oak) THEN

Sugar Maple, Hard Mast Association (4111)

ELSE IF AT LEAST 80% is Maple spp + Beech + Cherry THEN

Maple Association (4112)

ELSE IF AT LEAST 60% is Beech + Hemlock THEN

Beech, Hemlock (4114)

ELSE IF AT LEAST 20% is Yellow Birch + Hemlock THEN

Yellow Birch, Hemlock (4115)

ELSE IF AT LEAST 50% is Red Maple AND AT LEAST 20% is Conifer THEN

Red Maple, Conifer (4113)

ELSE IF AT LEAST 20% is Pine THEN

Mixed Northern Hardwood-Pine (4117)

ELSE IF AT LEAST 20% Aspen spp. THEN

Mixed Northern Hardwood-Aspen (4116)

ELSE **Mixed Northern Hardwoods (4119)**

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ELSE IF AT LEAST 60% Oak THEN
    Oak Type (412)
    IF AT LEAST 15% Hickory THEN
        Oak, Hickory (4120)
    ELSE IF AT LEAST 30% Pine THEN
        Oak, Pine (4122)
    ELSE IF AT LEAST 30% Aspen spp. THEN
        Oak, Aspen (4121)
    ELSE IF AT LEAST 40% Red Oak THEN Red Oak types
        IF AT LEAST 20% White Oak THEN
            Red with White Oak (4124)
        ELSE
            Red Oak (4123)
    ELSE IF AT LEAST 40% Northern Pin Oak + White Oak + Black Oak THEN
        Other Oaks
        IF AT LEAST 20% White Oak THEN
            White, Black, Northern Pin Oak (4126)
        ELSE
            Black, Northern Pin Oak (4125)
    ELSE
        Mixed Oak (4129)
ELSE IF AT LEAST 40% Aspen Species THEN
    Aspen Type (413)
    IF AT LEAST 20% Conifer THEN Aspen, Conifer
        IF AT LEAST 20% Cedar THEN
            Aspen, Cedar (4135)
        ELSE IF AT LEAST 20% Spruce or Fir THEN
            Aspen, Spruce/Fir (4134)
        ELSE IF AT LEAST 20% Pine THEN Aspen, Pine
            IF Jack Pine IS GREATER THAN OR EQUAL TO
            White Pine + Red Pine THEN
                Aspen, Jack Pine (4132)
            ELSE
                Aspen, Mixed Pine (4133)
        ELSE
            Aspen, Mixed Conifer (4136)
    ELSE IF AT LEAST 20% Oak THEN
        Aspen, Mixed Oak (4131)
    ELSE IF AT LEAST 60% Aspen THEN
        Aspen (4130)
    ELSE IF AT LEAST 20% Birch spp. THEN
        Aspen, Birch (4137)
    ELSE
        Aspen, Mixed Deciduous
ELSE IF AT LEAST 60% any other single species (like paper birch) THEN
    Other Upland Deciduous (4140); refer to database to
    see species breakdown
ELSE
    Mixed Upland Deciduous (419)

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ELSE IF AT LEAST 60% of the tree canopy is coniferous THEN
    UPLAND CONIFEROUS FOREST (42)
    IF AT LEAST 60% of the tree canopy is Pine THEN Pines
    IF Plantation THEN
        Planted Pine (421)
        IF AT LEAST 60% is White Pine THEN
            Planted White Pine
            IF AT LEAST 20% Deciduous THEN
                Planted White Pine, Mixed Deciduous (42101)

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ELSE **Planted White Pine (42100)**

<p>ELSE IF AT LEAST 60% Red Pine THEN Planted Red Pine IF AT LEAST 20% Deciduous THEN Planted Red Pine, Mixed Deciduous (42111) ELSE Planted Red Pine (42110) ELSE IF AT LEAST 60% Jack Pine THEN Planted Jack Pine IF AT LEAST 20% Deciduous THEN Planted Jack Pine, Mixed Deciduous (42121) ELSE Planted Jack Pine (42120) ELSE IF AT LEAST 60% Scotch Pine THEN Planted Scotch Pine (42130) IF AT LEAST 20% Deciduous THEN Planted Mixed Pine, Mixed Deciduous (42141) ELSE Planted Mixed Pine (42140)</p>
<p>ELSE non-planted THEN Natural Pine (422) IF AT LEAST 30% Oak THEN Pine-Oak (42250) ELSE IF AT LEAST 60% White Pine THEN Natural White Pine IF AT LEAST 30% Deciduous THEN Natural White Pine, Mixed Deciduous (42201) ELSE Natural White Pine (42200) ELSE IF AT LEAST 60% Red Pine THEN Natural Red Pine IF AT LEAST 30% Deciduous THEN Natural Red Pine, Mixed Deciduous (42211) ELSE Natural Red Pine (42210) ELSE IF AT LEAST 60% Jack Pine THEN Natural Jack Pine IF AT LEAST 30% Deciduous THEN Natural Jack Pine, Mixed Deciduous (42221) ELSE Natural Jack Pine (42220) IF AT LEAST 30% Deciduous THEN Natural Mixed Pine, Mixed Deciduous (42260) ELSE Natural Mixed Pine (42290)</p>
<p>ELSE IF AT LEAST 60% Non-Pine (Other) Upland Conifers THEN Non-Pine (Other) Upland Conifers (423) IF Plantation THEN Planted (No Specific 4-digit Class) IF AT LEAST 60% Larch THEN Planted Larch IF AT LEAST 20% Deciduous THEN Planted Larch, Mixed Deciduous (42301) ELSE Planted Larch (42300) ELSE IF AT LEAST 60% Spruce THEN Planted Spruce IF AT LEAST 20% Deciduous THEN Planted Spruce Mixed Deciduous (42311) ELSE Planted Spruce (42310)</p>

	<p>ELSE non-planted THEN Non Planted (No Specific 4-digit Class)</p> <p>IF AT LEAST 50% Hemlock THEN</p> <p style="padding-left: 40px;">Upland Hemlock (42350)</p> <p>ELSE IF AT LEAST 60% Spruce THEN</p> <p style="padding-left: 40px;">Upland Spruce (42320)</p> <p>ELSE IF AT LEAST 60% Fir THEN</p> <p style="padding-left: 40px;">Upland Fir (42330)</p> <p>ELSE IF AT LEAST 60% Spruce + Fir THEN</p> <p style="padding-left: 40px;">Upland Spruce/Fir (42340)</p> <p>ELSE IF AT LEAST 60% Cedar THEN UPLAND CEDAR</p> <p style="padding-left: 40px;">IF AT LEAST 20% Aspen spp. THEN</p> <p style="padding-left: 80px;">Upland Cedar, Aspen (42370)</p> <p style="padding-left: 40px;">ELSE Upland Cedar (42360)</p> <p>ELSE IF AT LEAST 30% Deciduous THEN</p> <p style="padding-left: 40px;">Non-Pine Upland Conifer, Mxd Deciduous (42380)</p> <p style="padding-left: 40px;">ELSE Mixed Non-Pine Upland Conifers (42390)</p> <p>ELSE Mixed Upland Conifers (429)</p> <p>ELSE Upland Mixed Forest (43)</p>
ELSE IF evidence of flooding during the past 5 years OR supporting lowland indicator plants THEN	<p>Lowland Forest (61)</p> <p>IF AT LEAST 60% of the tree canopy is deciduous THEN</p> <p style="padding-left: 40px;">Lowland Deciduous Forest (611)</p> <p style="padding-left: 40px;">IF AT LEAST 20% Cedar THEN</p> <p style="padding-left: 80px;">Lowland Deciduous with Cedar (6118)</p> <p style="padding-left: 40px;">ELSE IF AT LEAST 20% Coniferous THEN</p> <p style="padding-left: 80px;">Lowland Deciduous, Mixed Coniferous (6117)</p> <p style="padding-left: 40px;">ELSE IF AT LEAST 60% Maple spp. THEN</p> <p style="padding-left: 80px;">Lowland Maple (6113)</p> <p style="padding-left: 40px;">ELSE IF AT LEAST 60% Oak spp. THEN</p> <p style="padding-left: 80px;">Lowland Oak (6114)</p> <p style="padding-left: 40px;">ELSE IF AT LEAST 60% Ash spp THEN</p> <p style="padding-left: 80px;">Lowland Ash (6115)</p> <p style="padding-left: 40px;">ELSE IF AT LEAST 60% Cottonwood THEN</p> <p style="padding-left: 80px;">Cottonwood (6110)</p> <p style="padding-left: 40px;">ELSE IF AT LEAST 60% Birch spp. THEN</p> <p style="padding-left: 80px;">Lowland Birch (6116)</p> <p style="padding-left: 40px;">ELSE IF AT LEAST 40% Aspen + Balsam Poplar THEN</p> <p style="padding-left: 80px;">Lowland Aspen/Balsam Poplar</p> <p style="padding-left: 40px;">IF Aspen spp % IS GREATER THAN Balsam Poplar % THEN</p> <p style="padding-left: 80px;">Lowland Aspen (6112)</p> <p style="padding-left: 40px;">ELSE Lowland Balsam Poplar (6111)</p> <p>ELSE Mixed Lowland Deciduous Forest (6119)</p>
ELSE IF AT LEAST 60% of the tree canopy is coniferous THEN	<p style="padding-left: 40px;">Lowland Coniferous Forest (612)</p> <p style="padding-left: 40px;">IF AT LEAST 50% Cedar THEN</p> <p style="padding-left: 80px;">Lowland Cedar (6120)</p> <p style="padding-left: 40px;">ELSE IF AT LEAST 50% Tamarack THEN</p> <p style="padding-left: 80px;">Tamarack (6121)</p> <p style="padding-left: 40px;">ELSE IF AT LEAST 50% Black Spruce THEN</p> <p style="padding-left: 80px;">Black Spruce (6122)</p> <p style="padding-left: 40px;">ELSE IF AT LEAST 50% Fir THEN</p> <p style="padding-left: 80px;">Lowland Fir (6123)</p> <p style="padding-left: 40px;">ELSE IF AT LEAST 50% Spruce + Fir THEN</p> <p style="padding-left: 80px;">Lowland Spruce/Fir (6124)</p>

	ELSE IF AT LEAST 50% Jack Pine THEN Lowland Jack Pine (6126)
	ELSE IF AT LEAST 50% Black Spruce + Jack Pine THEN Lowland Black Spruce, Jack Pine (6125)
	ELSE IF AT LEAST 50% Pine THEN Lowland Pine (6127)
	ELSE IF AT LEAST 20% Deciduous THEN Lowland Coniferous, Mixed Deciduous (6128)
	ELSE Mixed Coniferous Lowland Forest (6129)
ELSE	Lowland Mixed Forest (613)
	IF AT LEAST 20% Cedar THEN Mixed Lowland Forest with Cedar (6132)
	ELSE IF AT LEAST 60% Fir + Aspen +Balsam Poplar + Maple THEN Fir, Aspen, Maple (6130)
	ELSE IF A LEAST 60% Hemlock + White Pine + Maple + Birch THEN Hemlock, White Pine, Maple, Birch (6131)
	ELSE Mixed Lowland Forest (6139)

Appendix B. NED FOREST TYPES

Name	Description
allegheeny hardwoods	The allegheny hardwoods forest type is a mixed forest type. The characteristic types are: cherry and northern hardwoods. The associated species are: American basswood, bigtooth aspen, cucumber-tree, eastern hemlock, northern red oak, paper birch, pin cherry, quaking aspen, striped maple, sweet birch, tuliptree and white
appalachian hardwoods	The appalachian hardwoods forest type is a mixed forest type. The characteristic types are: northern hardwoods and yellow poplar. The associated species are: balsam fir, striped maple, buckeye, serviceberry, pawpaw, sweet birch, paper birch, American hornbeam, hickory, bitternut hickory, common hackberry, eastern redbud, flowering dogwood, white ash, black ash, green ash, American witchhazel, butternut, black walnut, sweetgum, tuliptree, cucumber-tree, mountain magnolia, southern magnolia, umbrella-tree, sweetbay, swamp tupelo, blackgum, hophornbeam, red spruce, shortleaf pine, eastern white pine, loblolly pine, Virginia pine, cottonwood, bigtooth aspen, quaking aspen, pin cherry, black cherry, oak, white oak, southern red oak, chestnut oak, northern red oak,
aspen	The aspen forest type is a base forest type. The characteristic species are: balsam poplar, bigtooth aspen and quaking aspen. The associated species are: American beech, black cherry, eastern hemlock, gray birch, paper birch, pin cherry, red maple, sugar maple,
aspen northern hardwoods	The aspen northern hardwoods forest type is a mixed forest type. The characteristic types are: aspen and northern hardwoods. There are no associated species.
aspen-birch	The aspen-birch forest type is a mixed forest type. The characteristic types are: aspen and birch. The associated species are: American beech, black cherry, eastern hemlock, red maple, sugar maple,
beech magnolia	The beech magnolia forest type is a base forest type. The characteristic species are: American beech and southern magnolia. The associated species are: American elm, American sycamore, black ash, black willow, eastern cottonwood, green ash, pin oak, plains cottonwood, red maple, river birch, silver maple, sugarberry,
beech-birch	The beech-birch forest type is a base forest type. The characteristic species are: American beech and yellow birch. There are no
birch	The birch forest type is a base forest type. The characteristic species are: gray birch and paper birch. The associated species are: American beech, bigtooth aspen, black cherry, eastern hemlock, pin cherry, quaking aspen, red maple, sugar maple, sweet birch and
cherry	The cherry forest type is a base forest type. The characteristic species is: black cherry. The associated species are: American basswood, American beech, bigtooth aspen, cucumber-tree, eastern hemlock, northern red oak, paper birch, pin cherry, quaking aspen,

hickory	The hickory forest type is a base forest type. The characteristic species are: hickory, mockernut hickory, water hickory, southern shagbark hickory, bitternut hickory, pignut hickory, pecan, shellbark hickory, nutmeg hickory, red hickory, shagbark hickory, sand hickory and black hickory. The associated species are: maple, black maple, red maple, buckeye, Ohio buckeye, horse chestnut, ailanthus, tree of heaven, American hornbeam, American chestnut, chinkapin, Ozark chinkapin, catalpa, southern catalpa, northern catalpa, hackberry and
mangroves	The mangroves forest type is a base forest type. The characteristic species are: American mangrove, black mangrove and white mangrove. The associated species are: button mangrove, cabbage
maple	The maple forest type is a base forest type. The characteristic species are: red maple and sugar maple. The associated species are: American basswood, American beech, bigtooth aspen, black cherry, cucumber-tree, eastern hemlock, northern red oak, paper birch, pin cherry, quaking aspen, striped maple, sweet birch, tuliptree
northern hardwoods	The northern hardwoods forest type is a mixed forest type. The characteristic types are: beech-birch and maple. The associated species are: balsam fir, Fraser fir, striped maple, mountain maple, yellow buckeye, serviceberry, pawpaw, sweet birch, paper birch, American hornbeam, hickory, bitternut hickory, common hackberry, flowering dogwood, white ash, black ash, green ash, American witchhazel, butternut, black walnut, tuliptree, tuliptree, cucumber-tree, hophornbeam, white spruce, red spruce, western white pine, southwestern white pine, eastern white pine, bigtooth aspen, quaking aspen, pin cherry, black cherry, chokecherry, white oak, southern red oak, northern red oak, black oak, mountain ash, arborvitae,
oak	The oak forest type is a base forest type. The characteristic species are: oak, white oak, scarlet oak, northern pin oak, Emory oak, southern red oak, bear oak, overcup oak, bur oak, blackjack oak, chinkapin oak, cherrybark oak, pin oak, willow oak, chestnut oak, northern red oak, post oak, black oak and live oak. The associated species are: maple, red maple, tree of heaven, hickory, mockernut hickory, water hickory, bitternut hickory, pignut hickory, pecan, shellbark hickory, nutmeg hickory, shagbark hickory, sand hickory, black hickory, American chestnut, hackberry, common hackberry, flowering dogwood, common persimmon, butternut, black walnut,
oak northern hardwoods	The oak northern hardwoods forest type is a mixed forest type. The characteristic types are: northern hardwoods and oak-hickory. The associated species are: American basswood, bigtooth aspen, black cherry, black locust, black walnut, blackgum, butternut, common persimmon, cucumber-tree, eastern hemlock, flowering dogwood, paper birch, pin cherry, pitch pine, quaking aspen, sassafras, striped
oak yellow poplar	The oak yellow poplar forest type is a mixed forest type. The characteristic types are: oak and yellow poplar. The associated species are: American basswood, American beech, bigtooth aspen, cucumber-tree, eastern hemlock, paper birch, pin cherry, quaking

oak-hickory	The oak-hickory forest type is a mixed forest type. The characteristic types are: hickory and oak. The associated species are: striped maple, red maple, sugar maple, buckeye, tree of heaven, serviceberry, pawpaw, yellow birch, sweet birch, paper birch, American hornbeam, chinkapin, eastern redbud, alternatleaf dogwood, roughleaf dogwood, flowering dogwood, common persimmon, American beech, white ash, green ash, American witchhazel, butternut, black walnut, eastern redcedar, mountain laurel, sweetgum, tuliptree, tuliptree, cucumber-tree, blackgum, hophornbeam, sourwood, shortleaf pine, longleaf pine, Table Mountain pine, red pine, pitch pine, eastern white pine, loblolly pine, Virginia pine, bigtooth aspen, quaking aspen, American plum, black
southern mixed mesic hardwood	The southern mixed mesic hardwoods forest type is a mixed forest type. The characteristic types are: appalachian hardwoods and beech magnolia. There are no associated species.
southern scrub oak	The southern scrub oak forest type is a base forest type. The characteristic species are: sand live oak, bluejack oak, turkey oak, runner oak, blackjack oak, myrtle oak and live oak. The associated species are: common persimmon and saw palmetto.
tropical hardwoods	The tropical hardwoods forest type is a base forest type. The characteristic species are: false mastic, false tamarind, Florida poison tree, gumbo limbo, lancewood, leadwood, live oak, redbay, sea torchwood, tietongue and white bully. There are no associated
yellow poplar	The yellow poplar forest type is a base forest type. The characteristic species is: tuliptree. The associated species are: red maple, sugar maple, yellow birch, sweet birch, paper birch, American beech, cucumber-tree, bigtooth aspen, quaking aspen, pin cherry, northern
yellow poplar bottomland hardwd	The yellow poplar bottomland hardwoods forest type is a mixed forest type. The characteristic types are: bottomland hardwoods and yellow poplar. The associated species are: maple, boxelder, black maple, red maple, silver maple, buckeye, Ohio buckeye, serviceberry, Saskatoon serviceberry, common serviceberry, Allegheny serviceberry, pawpaw, birch, yellow birch, sweet birch, river birch, hackberry, sugarberry, common hackberry, eastern redbud, Kentucky yellowwood, alternatleaf dogwood, flowering dogwood, American beech, ash, white ash, Carolina ash, black ash, green ash, silverbell, Carolina silverbell, magnolia, cucumber-tree, mountain magnolia, bigleaf magnolia, umbrella-tree, sweetbay, tupelo, blackgum, hophornbeam, sourwood, sycamore, American sycamore, eastern cottonwood, black cherry, southern red oak,
Coniferous forest	
bottomland conifer	The bottomland conifer forest type is a base forest type. The characteristic species are: balsam fir, Atlantic white cedar, tamarack, black spruce, red pine, eastern white pine, eastern hemlock and Carolina hemlock. The associated species are: boxelder, red maple, silver maple, black ash, green ash, balsam poplar, eastern cottonwood, peachleaf willow, pussy willow, river willow, black willow,
cedar	The cedar forest type is a base forest type. The characteristic species are: Atlantic white cedar and arborvitae. The associated species are: balsam fir, red maple, yellow birch, paper birch, tamarack, white spruce, black spruce, red spruce, eastern white

fir	The fir forest type is a base forest type. The characteristic species are: balsam fir and Fraser fir. The associated species are: red maple, yellow birch, paper birch, Atlantic white cedar, tamarack, white spruce, black spruce, red spruce, eastern white pine, hemlock,
hemlock	The hemlock forest type is a base forest type. The characteristic species are: hemlock, eastern hemlock and Carolina hemlock. The associated species are: red maple, sugar maple, yellow birch, American beech, tuliptree, red spruce, eastern white pine, black
loblolly pine-shortleaf pine	The loblolly pine-shortleaf pine forest type is a base forest type. The characteristic species are: eastern redcedar, shortleaf pine and loblolly pine. The associated species are: red maple, hickory, mockernut hickory, bitternut hickory, pignut hickory, eastern redbud, white fringetree, flowering dogwood, common persimmon, American beech, Carolina buckthorn, white ash, Carolina ash, American witchhazel, American holly, southern redcedar, sweetgum, tuliptree, sweetbay, wax myrtle, swamp tupelo, blackgum, sourwood, redbay, slash pine, longleaf pine, Table Mountain pine, pitch pine, pond pine, Virginia pine, black cherry, white oak, scarlet oak, southern red oak, laurel oak, blackjack oak, water oak, cherrybark oak, willow oak, northern red oak, post oak, black oak, sassafras, common sweetleaf,
longleaf pine	The longleaf pine forest type is a base forest type. The characteristic species is: longleaf pine. The associated species are: blackgum, blackjack oak, common persimmon, dogwood, loblolly pine, sassafras, shortleaf pine, slash pine, southern red oak, swamp
pine	The pine forest type is a base forest type. The characteristic species are: jack pine, Table Mountain pine, red pine, pitch pine and eastern white pine. The associated species are: red maple, sugar maple, gray birch, hickory, mockernut hickory, bitternut hickory, pignut hickory, pecan, shellbark hickory, shagbark hickory, white ash, tuliptree, red spruce, shortleaf pine, loblolly pine, Virginia pine,
pine hemlock	The pine hemlock forest type is a mixed forest type. The characteristic types are: hemlock and pine. The associated species are: American basswood, American beech, bigtooth aspen, bitternut hickory, black cherry, black hickory, chestnut oak, gray birch, hickory, loblolly pine, mockernut hickory, northern red oak, nutmeg hickory, Pacific silver fir, pecan, pignut hickory, quaking aspen, red maple, red spruce, sand hickory, shagbark hickory, shellbark hickory, shortleaf pine, sugar maple, tuliptree, Virginia pine, water hickory,
plantation fir	The plantation fir forest type is a base forest type. The characteristic species are: Pacific silver fir, balsam fir, white fir, Fraser fir and grand fir. There are no associated species.
plantation larch	The plantation larch forest type is a base forest type. The characteristic species are: European larch, Japanese larch, tamarack and western larch. There are no associated species.
plantation pine	The plantation pine forest type is a base forest type. The characteristic species are: jack pine, sand pine, lodgepole pine, shortleaf pine, slash pine, western white pine, longleaf pine, Table Mountain pine, red pine, pitch pine, pond pine, eastern white pine, Scotch pine, loblolly pine and Virginia pine. There are no associated
plantation spruce	The plantation spruce forest type is a base forest type. The characteristic species are: Norway spruce, white spruce, black spruce, blue spruce, red spruce and Sitka spruce. There are no

pond pine	The pond pine forest type is a base forest type. The characteristic species are: Atlantic white cedar and pond pine. The associated species are: bald cypress, blackgum, eastern white pine, gray birch, hemlock, loblolly bay, loblolly pine, pitch pine, pond cypress, red maple, redbay, slash pine, southern bayberry, southwestern white pine, swamp titi, swamp tupelo, sweetbay, sweetgum, wax myrtle,
sand pine	The sand pine forest type is a base forest type. The characteristic species is: sand pine. The associated species are: Boynton sand post oak, Chapman oak, common persimmon, dwarf live oak,
southern pine	The southern pine forest type is a base forest type. The characteristic species are: loblolly pine, shortleaf pine and Virginia pine. The associated species are: bitternut hickory, black hickory, black oak, blackgum, chestnut oak, common persimmon, flowering dogwood, hickory, mockernut hickory, northern red oak, nutmeg hickory, pecan, pignut hickory, pitch pine, red maple, sand hickory, scarlet oak, shagbark hickory, shellbark hickory, sweetgum, water
spruce	The spruce forest type is a base forest type. The characteristic species are: black spruce, red spruce and white spruce. The associated species are: Atlantic white cedar, eastern hemlock, eastern white pine, Fraser fir, Pacific silver fir, paper birch, red maple
spruce-fir	The spruce-fir forest type is a mixed forest type. The characteristic types are: fir and spruce. The associated species are: American beech, arborvitae, Atlantic white cedar, black cherry, cottonwood, eastern hemlock, eastern white pine, gray birch, hemlock, mountain ash, mountain maple, northern red oak, paper birch, pin cherry, red maple, red pine, southwestern white pine, striped maple, sugar
xeric mixed southern pine	The xeric mixed southern pine forest type is a base forest type. The characteristic species are: shortleaf pine, Table Mountain pine, pitch pine and Virginia pine. The associated species are: red maple, gray birch, hickory, Atlantic white cedar, flowering dogwood, American holly, eastern redcedar, sweetgum, tuliptree, sweetbay, swamp tupelo, blackgum, sourwood, eastern white pine, loblolly pine, black cherry, white oak, scarlet oak, southern red oak, blackjack oak, chinkapin oak, willow oak, chestnut oak, northern red oak, post oak,
Mixed Coniferous/Broadleaf forest	
aspen pine	The aspen pine forest type is a mixed forest type. The characteristic types are: aspen and pine. There are no associated species.
aspen spruce-fir	The aspen spruce-fir forest type is a mixed forest type. The characteristic types are: aspen and spruce-fir. There are no
bottomland mixed	The bottomland mixed forest type is a mixed forest type. The characteristic types are: bottomland conifer and bottomland hardwoods. There are no associated species.
hemlock hardwoods	The hemlock hardwoods forest type is a mixed forest type. The characteristic types are: hemlock and northern hardwoods. The associated species are: striped maple, sweet birch, paper birch, white ash, tuliptree, cucumber-tree, red spruce, eastern white pine, bigtooth aspen, quaking aspen, pin cherry, black cherry, northern red
live oak maritime	The live oak maritime forest type is a base forest type. The characteristic species is: live oak. The associated species are: cabbage palmetto and southern redcedar.

longleaf pine-scrub oak	The longleaf pine-scrub oak forest type is a mixed forest type. The characteristic types are: longleaf pine and southern scrub oak. The associated species are: southern bayberry, swamp titi and wax
mesic mixed pine-hardwoods	The mesic mixed pine-hardwoods forest type is a mixed forest type. The characteristic types are: mesic mixed southern pine and southern mixed mesic hardwoods. The associated species are: American holly, buckwheat tree, cherrybark oak, farkleberry, flowering dogwood, hawthorn, littleleaf titi, mockernut hickory, myrtle dahoon, northern red oak, pignut hickory, possumhaw, post oak, redbay, rusty blackhaw, scarlet oak, scentless bayberry, shagbark hickory, shortleaf pine, sourwood, southern bayberry, southern red oak, spruce pine, swamp chestnut oak, tuliptree, Virginia pine, wax
mesic mixed southern pine	The mesic mixed southern pine forest type is a base forest type. The characteristic species are: American elm, Atlantic white cedar, Carolina ash, loblolly bay, loblolly pine, longleaf pine, pond cypress, pond pine, red maple, slash pine, swamp bay, swamp tupelo, sweetbay, sweetgum and water oak. The associated species are: bald cypress, blackgum, blackjack oak, bluejack oak, buckwheat tree, cabbage palmetto, common persimmon, dogwood, flowering dogwood, hickory, laurel oak, live oak, myrtle dahoon, myrtle oak, post oak, sand live oak, sand pine, sassafras, scentless bayberry, shortleaf pine, southern bayberry, southern red oak, southern
oak northern pine	The oak northern pine forest type is a mixed forest type. The characteristic types are: oak-hickory and pine. There are no
oak southern pine	The oak southern pine forest type is a mixed forest type. The characteristic types are: oak-hickory and southern pine. The associated species are: black locust, black walnut, blackgum, butternut, common persimmon, flowering dogwood, oak, pin oak, pitch pine, red maple, sassafras, swamp white oak, sweetgum, tree
pine hardwoods	The pine hardwoods forest type is a mixed forest type. The characteristic types are: northern hardwoods and pine. The associated species are: American basswood, bigtooth aspen, bitternut hickory, black cherry, black hickory, chestnut oak, cucumber-tree, eastern hemlock, gray birch, hickory, loblolly pine, mockernut hickory, northern red oak, nutmeg hickory, Pacific silver fir, paper birch, pecan, pignut hickory, pin cherry, quaking aspen, red spruce, sand hickory, shagbark hickory, shellbark hickory, shortleaf pine,
sand pine-southern scrub oak	The sand pine-southern scrub oak forest type is a mixed forest type. The characteristic types are: sand pine and southern scrub oak. The associated species are: Chapman oak, common persimmon, dwarf live oak, longleaf pine and saw palmetto.
spruce-northern hardwoods	The spruce-northern hardwoods forest type is a mixed forest type. The characteristic types are: northern hardwoods and spruce-fir. The associated species are: American basswood, Atlantic white cedar, bigtooth aspen, black cherry, cucumber-tree, eastern hemlock, eastern white pine, northern red oak, paper birch, pin cherry, quaking aspen, striped maple, sweet birch, tamarack, tuliptree and white ash.
xeric mixed pine-hardwoods	The xeric mixed pine-hardwoods forest type is a mixed forest type. The characteristic types are: oak-hickory and xeric mixed southern pine. The associated species are: red maple, eastern redbud, flowering dogwood, common persimmon, tuliptree, swamp tupelo, blackgum, sourwood, Table Mountain pine and winged elm.

oak bottomland hardwoods	The oak bottomland hardwoods forest type is a mixed forest type. The characteristic types are: bottomland hardwoods and oak. There are no associated species.
bay-swamp pocosin	The bay-swamp pocosin forest type is a base forest type. The characteristic species are: American elm, American holly, Atlantic white cedar, blackgum, cabbage palmetto, Carolina ash, flowering dogwood, laurel oak, loblolly bay, pond cypress, pond pine, red maple, redbay, slash pine, southern magnolia, swamp bay, swamp tupelo, sweetbay, sweetgum, tuliptree and water oak. The associated species are: American snowbell, buckwheat tree, dahoon, live oak, loblolly pine, longleaf pine, myrtle dahoon, poison sumac, possumhaw, sand live oak, saw palmetto, scentless bayberry,
bottomland hardwoods	The bottomland hardwoods forest type is a base forest type. The characteristic species are: American elm, American sycamore, bald cypress, balsam poplar, black ash, black walnut, black willow, boxelder, eastern cottonwood, green ash, pawpaw, pin oak, plains cottonwood, red maple, river birch, silver maple, sugarberry, swamp cottonwood, sweetgum, sycamore, tuliptree and willow. The associated species are: alternatleaf dogwood, American basswood, American beech, American bladdernut, American holly, American hornbeam, arborvitae, arroyo willow, balsam fir, Barclay's willow, Bebb willow, bigtooth aspen, black cherry, black spruce, blackgum, bur oak, butternut, chestnut oak, chokecherry, coastal plain willow, common hackberry, common persimmon, cottonwood, diamondleaf willow, dune willow, eastern hemlock, eastern white pine, feltleaf willow, flowering dogwood, Geyer's willow, Goodding's willow, gray
pond pine pocosin	The pond pine pocosin forest type is a base forest type. The characteristic species is: pond pine. The associated species are: red maple, swamp titi, loblolly bay, sweetgum, sweetbay, southern bayberry, wax myrtle, swamp tupelo, redbay, slash pine, loblolly pine,
southern bottomland hardwoods	The southern bottomland hardwoods forest type is a base forest type. The characteristic species are: boxelder, red maple, silver maple, pawpaw, black mangrove, water hickory, bitternut hickory, cypress, sweetgum, tuliptree, southern magnolia, sweetbay, water tupelo, swamp tupelo, blackgum, redbay, slash pine, pond pine, loblolly pine, laurel oak, swamp chestnut oak, cherrybark oak, willow oak, pond cypress, bald cypress and American elm. The associated species are: painted buckeye, American hornbeam, mockernut hickory, pignut hickory, shellbark hickory, shagbark hickory, sugarberry, eastern redbud, Atlantic white cedar, buckwheat tree, roughleaf dogwood, stiff dogwood, common persimmon, American beech, Carolina ash, green ash, pumpkin ash, water locust, honeylocust, dahoon, possumhaw, American holly, tuliptree, wax myrtle, red mulberry, Ogeechee tupelo, sourwood, spruce pine,