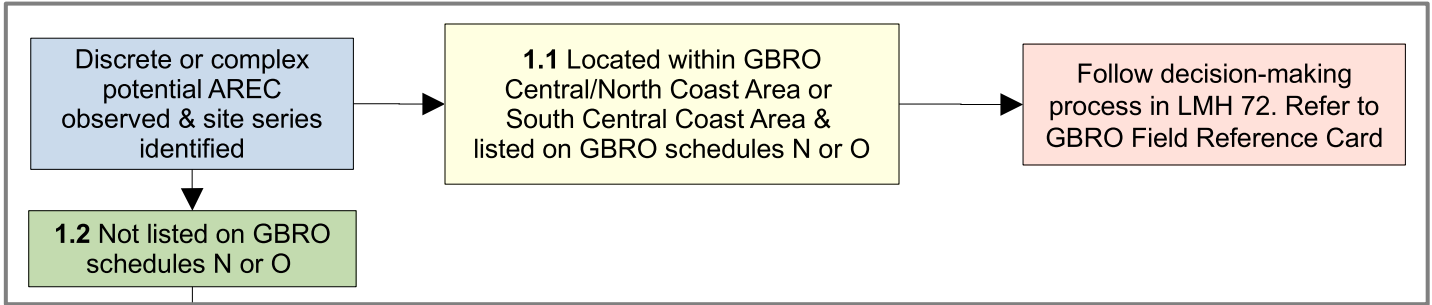
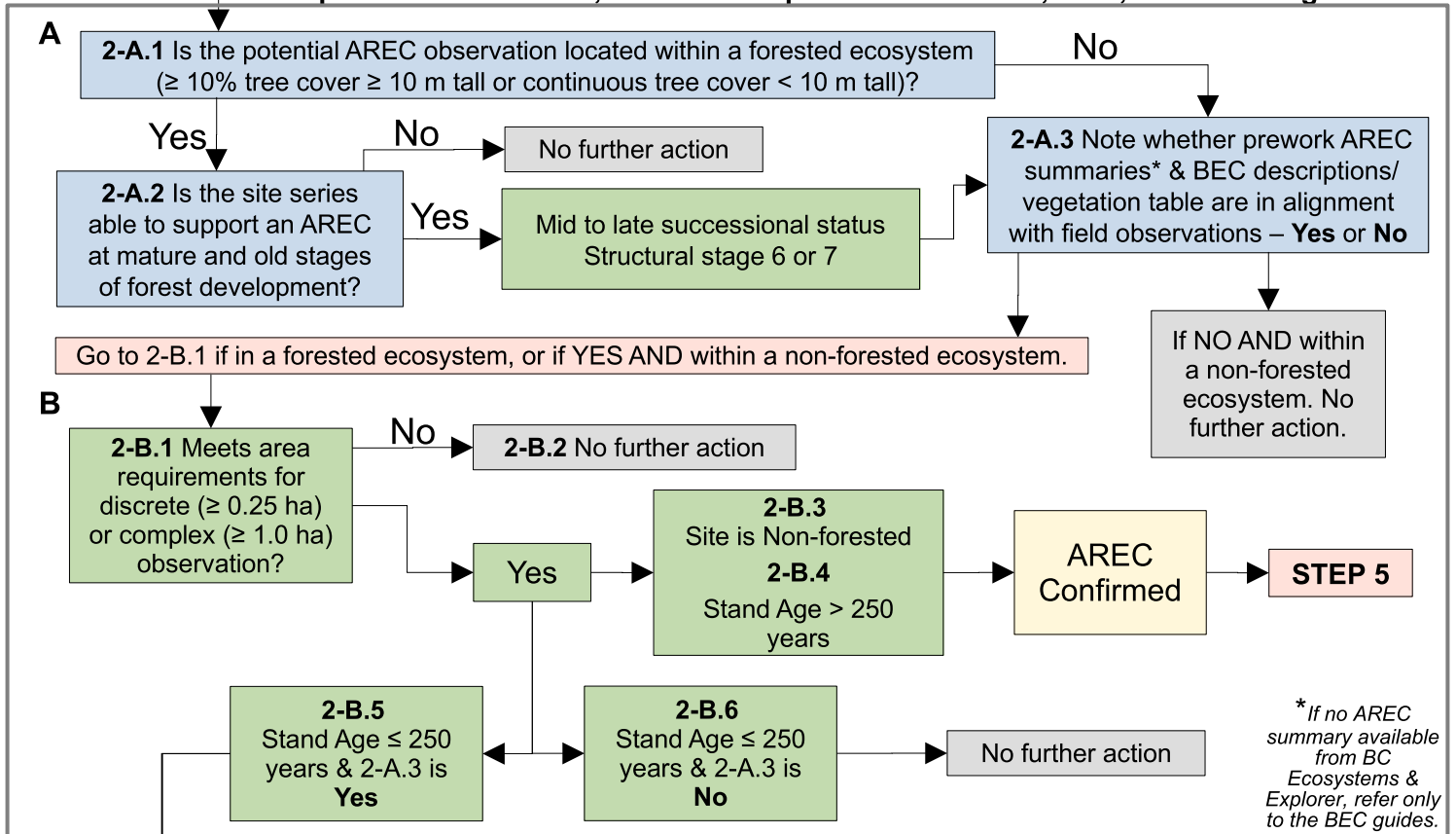


# At Risk Ecological Communities (AREC) NDT2 Field Reference Card p.1

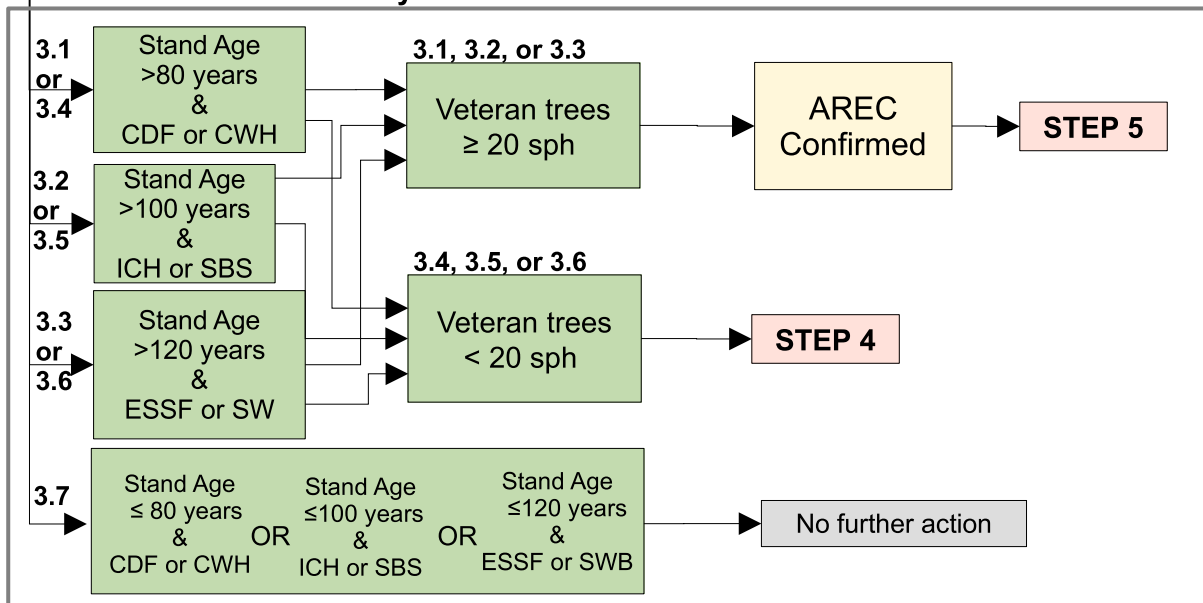
## STEP 1 – Potential AREC & Site Series Observations



## STEP 2 - Tree/Plant Species Identification, AREC Description Confirmation, Area, and Stand Age

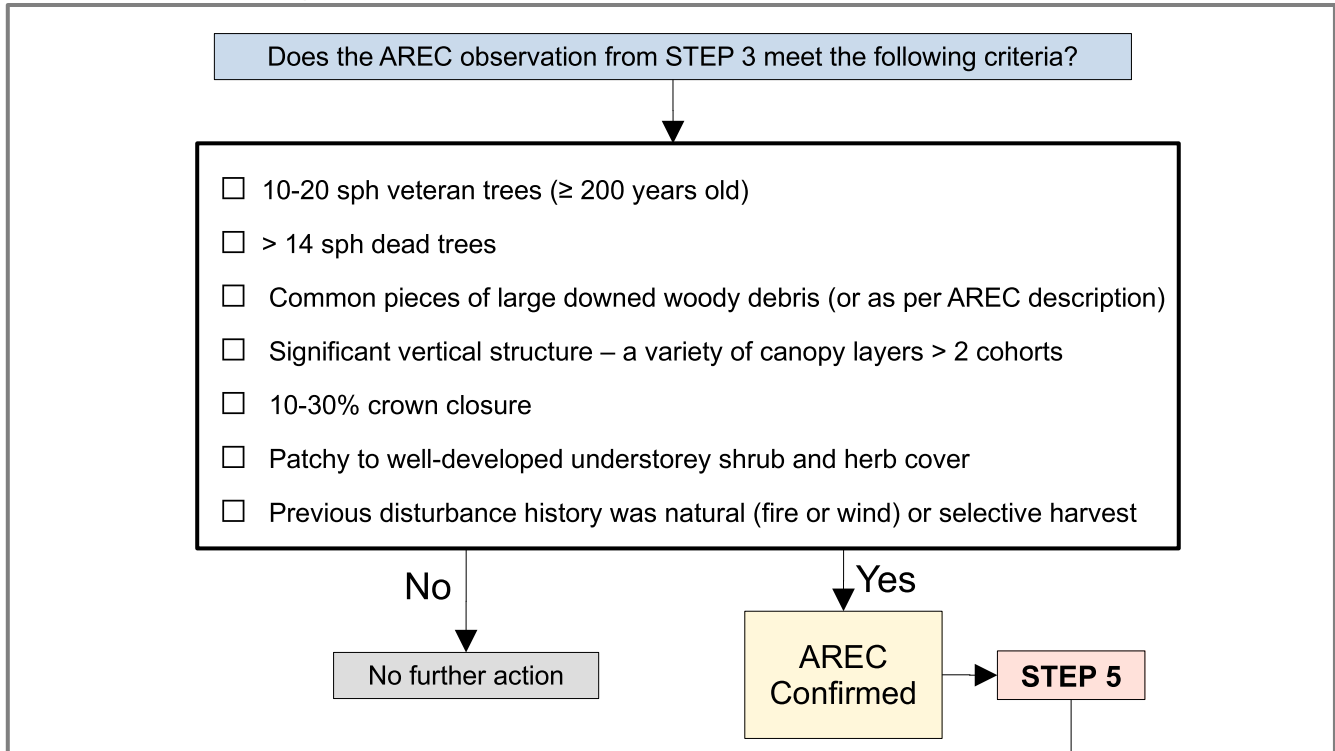


## STEP 3 – Stand Maturity Assessment



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## STEP 4 – Biodiversity Attributes Assessment



## STEP 5 – Field Form & Operability Observations

Complete the BCTS Species At Risk (SAR) Field Observation form (or similar), and take representative photos. Suggested plot size is 10 m x 10 m. Minimize edge effects by establishing plot at least one tree length into the stand from any edges. At minimum, record the following information:

Observer Details: Observer's Name, Date Observed, Location Information

AREC Observations: AREC Name, BEC unit (zone / subzone / variant / phase), site series, SMR, SNR, Area/size of AREC, List of vegetation and percent coverage (tree species, shrubs, herbs, mosses/lichens [see examples of foliage estimates for individual plants and of vegetation strata on next page - total percent coverages by layer/stratum may not exceed 100%, but percent coverages by individual species within a stratum could exceed 100% when there are vegetation overlaps]), Answers to the questions in 2-A, Comments to support assessment (e.g., assessment completed within NDT2, which steps were completed to confirm the AREC, etc.).

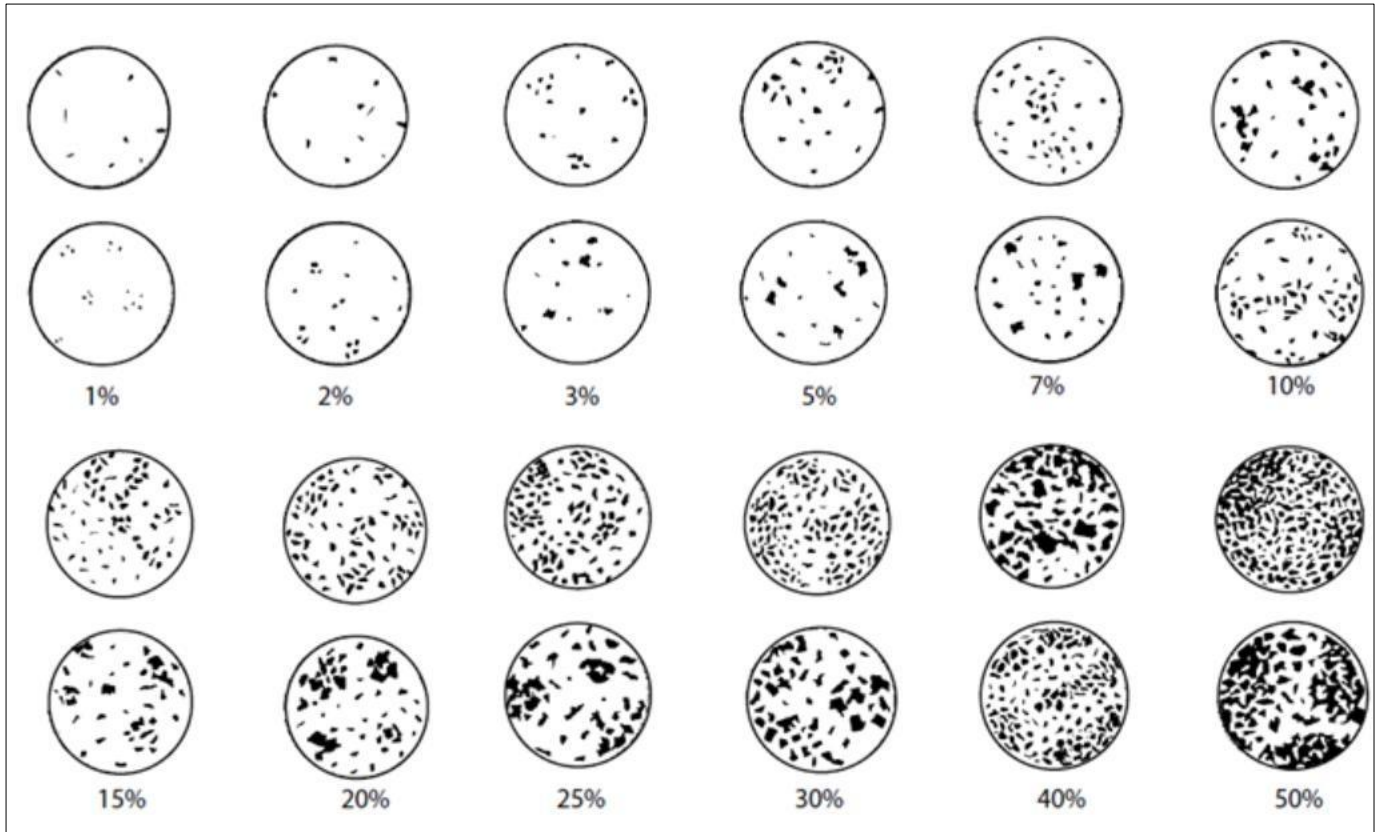
Supportive information (forested ecosystems only): Record stand age and how age was estimated. Include tree core data (species, ring count, etc.), where applicable. If the stand is younger than 250 years, record estimated veteran tree age, and sph.

Photos: Take photos in each of the cardinal directions, of the representative vegetation, and of the tree crown.

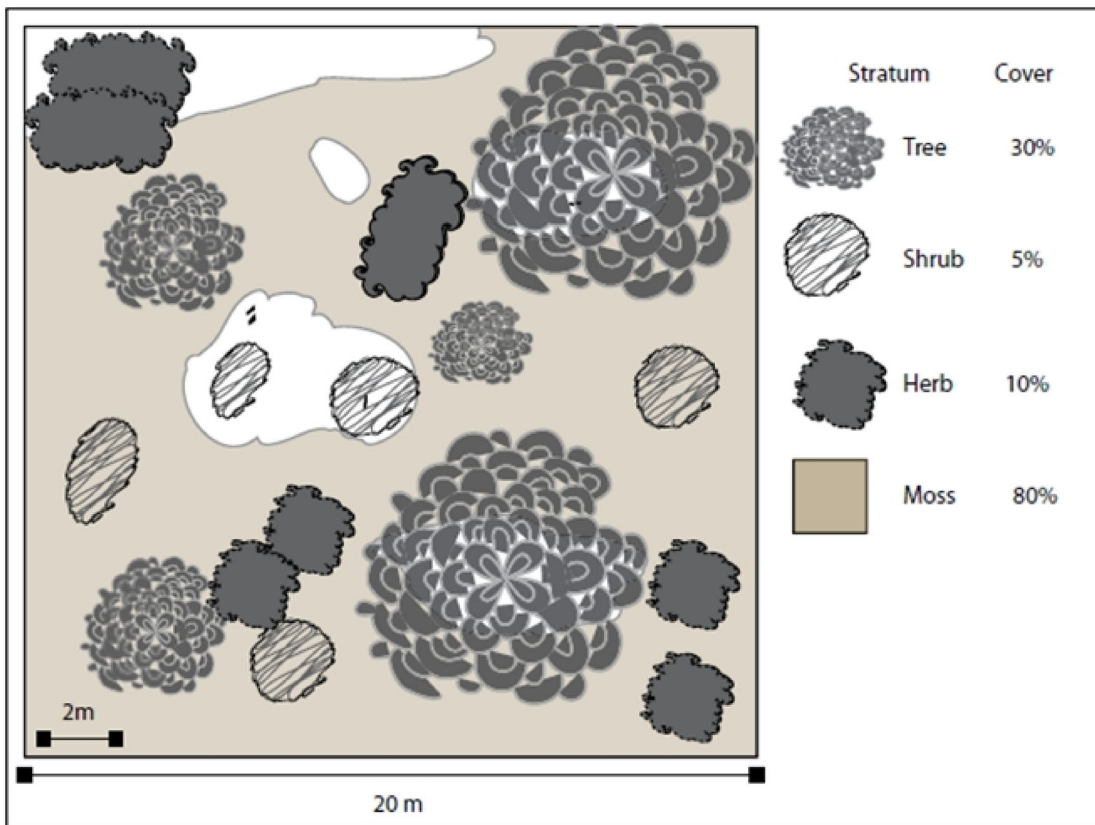
### Operability Observations

Take notes about the confirmed AREC location. Is the AREC located in an operable area? Is the area harvestable or not? Is the AREC already located within a reserve? Is the AREC located near established protected areas? Is the AREC location impeding access to current or future development? Are there any safety issues?

# At Risk Ecological Communities (AREC) NDT2 Field Reference Card p.3



Visual representations of foliage percent estimates – from Land Management Handbook 25



Bird's eye view of example vegetation strata in a plot – from Land Management Handbook 25

## At Risk Ecological Communities (AREC) NDT2 Field Reference Card p.4

A summary of definitions referred to in STEP 2-A.2. The following definitions, examples and diagrams have been quoted from the Field Manual for Describing Terrestrial Ecosystems 2<sup>nd</sup> Edition (2010). Examples are not always characteristic of NDT2.

Mid Successional Status - includes **Maturing Seral**, **Overmature Seral**, and **Young Climax** stands, as per the following:

### **“Maturing Seral:**

Community of early-successional tree species that have generally gone through an initial natural thinning due to species interactions such as within-stand competition for light or root-growing space, or a community where mid-successional species dominate. Very open stands may not go through a stem exclusion phase but could have a succession of understory plant species occurring.

- Trees of mature age (generally 60–140 years old).
- Generally two cohorts: one in the overstorey and a younger one in the regeneration layer, usually of species with greater shade tolerance, but may include a component of species that are the same as the overstorey (e.g., fluvial cottonwood stands).
- Includes stands subject to frequent stand-replacing disturbances where regeneration to another cohort may be limited or absent, but where the stand has matured through natural thinning and development of the community, and the expected regeneration for the climate and ecosystem is to another, more shade-tolerant species.
- Example: well-developed hybrid white spruce cohort under an older lodgepole pine canopy that is failing due to age-based mortality or a mountain pine beetle attack.



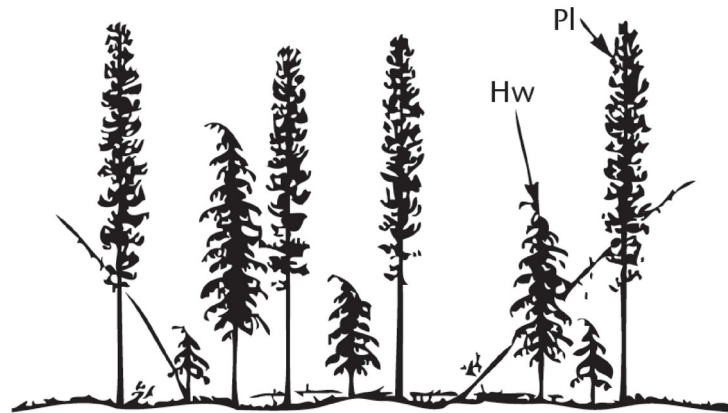
Maturing seral stand

### **Overmature Seral:**

Community where the seral overstorey species of the main upper canopy are dying.

- Usually > 140 years old.
- Typically with a secondary tree canopy consisting of more shade-tolerant species, or some of the same species as those dying; some individuals belonging to the secondary cohort may have entered the main canopy.
- Example: well-developed hybrid white spruce cohort under an older lodgepole pine canopy that is failing due to age-based mortality or a mountain pine beetle attack.

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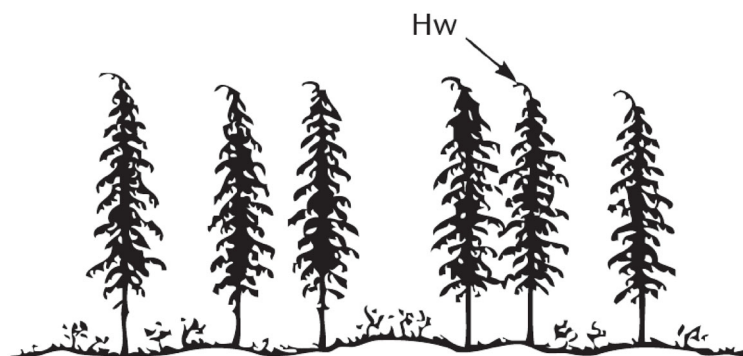


Overmature seral stand

### ***Young Climax:***

Community contains tree species typical of the climax expected for the site, but the proportional composition and structure expected at later climax stages has not developed; understory seral species are usually still evident. This stage may follow the development and death of a stand of seral species or may develop from climax species regeneration on a recently disturbed site.

- In cases where climax tree species are the initial cohort, stands can be young (<30 years); this often occurs in wetter climates where stand-replacing fires are infrequent.
- Includes previously recognized Young Climatic Climax and Young Edaphic Climax stages.
- Examples: young subalpine fir – Engelmann spruce stand in a wet subalpine climate; young ponderosa pine stand in a dry climate where it would be the fire-maintained climax species; 50-60 year old hybrid white spruce stand ‘released’ from canopy of 100 year old lodgepole pine killed by mountain pine beetle.”



Young climax stand

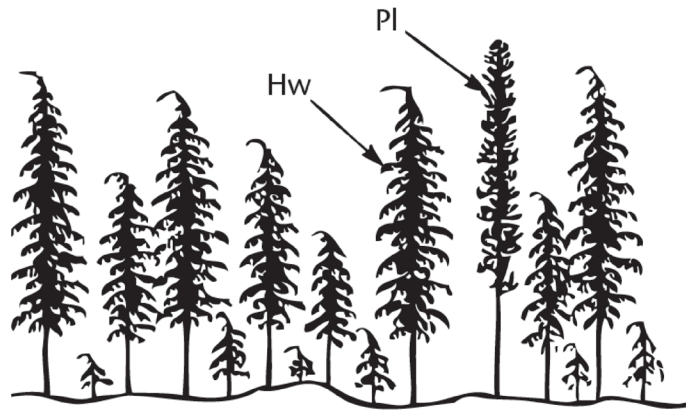
## At Risk Ecological Communities (AREC) NDT2 Field Reference Card p.6

Late Successional Status - includes *Maturing Climax*, and *Old Climax* stands, as per the following:

### *“Maturing Climax:*

Community composed of species in proportions more or less typical of late succession for the site; the stand has undergone natural thinning, and vertical structure has developed, but lacks the complex structure typical of old forests.

- Differs from [Young Climax] in having a typical mature forest understorey herb and shrub community; stands are developing continuous diameter and height class distributions of climax tree species; seral species may still exist.
- Stands are at least 80–120 years old, but usually older.
- Includes previously recognized Maturing Climatic Climax and Maturing Edaphic Climax stages.
- Examples: mature western redcedar – western hemlock forest with component of Douglas-fir in canopy; mature hybrid white spruce on high-bench floodplain with a developing understorey of multiple cohorts of spruce regeneration.



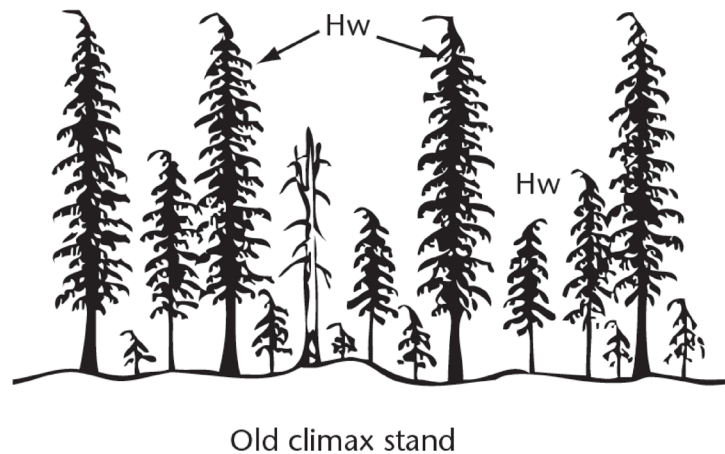
Maturing climax stand

### *Old Climax:*

The plant community is composed of species expected to be present in the climax stand; vertical structure is well developed; live-tree decay is evident and tree death has led to canopy gaps and large woody debris on the forest floor; often with well developed and distinct epiphytic communities.

- Occasionally, very long-lived seral species (e.g., Douglas-fir) are present, as a minor component of stand, but their removal would not cause a significant change in the growth or establishment of the climax trees.
- Differs from MC in having better-developed vertical and horizontal structure and a more or less continuous age and height class distribution of climax tree species.
- Stands are at least 250 years old, but often much older.
- Examples: very old coastal forests, including subalpine mountain hemlock – amabilis fir or hypermaritime western hemlock – western redcedar – yellow-cedar – shore pine; western redcedar – Devil’s club forest with epiphytic stubble-lichens in interior rainforest climate.

## At Risk Ecological Communities (AREC) NDT2 Field Reference Card p.7



### ***Structural Stage 6: Mature Forest - Understorey reinitiation stage:***

“Trees established after the last stand-replacing disturbance have matured; a second cycle of shade-tolerant trees may have become established; shrub and herb understories become well developed as the canopy opens up; time since disturbance is generally 80–140 years for BGCs with NDT 3 and 80–250 years for NDT 1, 2 & 4.”

### ***Structural Stage 7: Old Forest - Old-growth stages:***

“Stands of old age with complex structure; patchy shrub and herb understories are typical; regeneration is usually of shade-tolerant species with composition similar to the overstorey; long-lived seral species may be present in some ecosystem types or on edaphic sites. Old growth structural attributes will differ across biogeoclimatic units and ecosystems.”

#### ***Structural Stage 7a: Old Forest***

“Stands with moderately to well developed structural complexity; stands comprised mainly of shade-tolerant tree species in canopy and regeneration layers, although older seral trees from a disturbance such as fire may still dominate the upper canopy; fire-maintained stands may have a ‘single-storied’ appearance; time since stand-replacing disturbance is generally 140 – 250 years for biogeoclimatic units with NDT 3 and > 250 years for NDT 1, 2 & 4.”

#### ***Structural Stage 7b: Very Old Forest***

“Very old stands having complex structure with abundant large-sized trees, snags and coarse woody debris (size is relative to the specific ecosystem); snags and CWD occur in all stages of decomposition; stands are comprised entirely of shade-tolerant overstorey species with well-established canopy gaps; time since stand-replacing disturbance generally > 250 years for BGCs with NDT 3 and > 400 years for NDT 1, 2 & 4.”