



→ Germination
- Species specific
- Serotiny

Survival
past the
succulent stage

Grow!

and

hardening)

↳ Survive

the variability of

of env. where growing

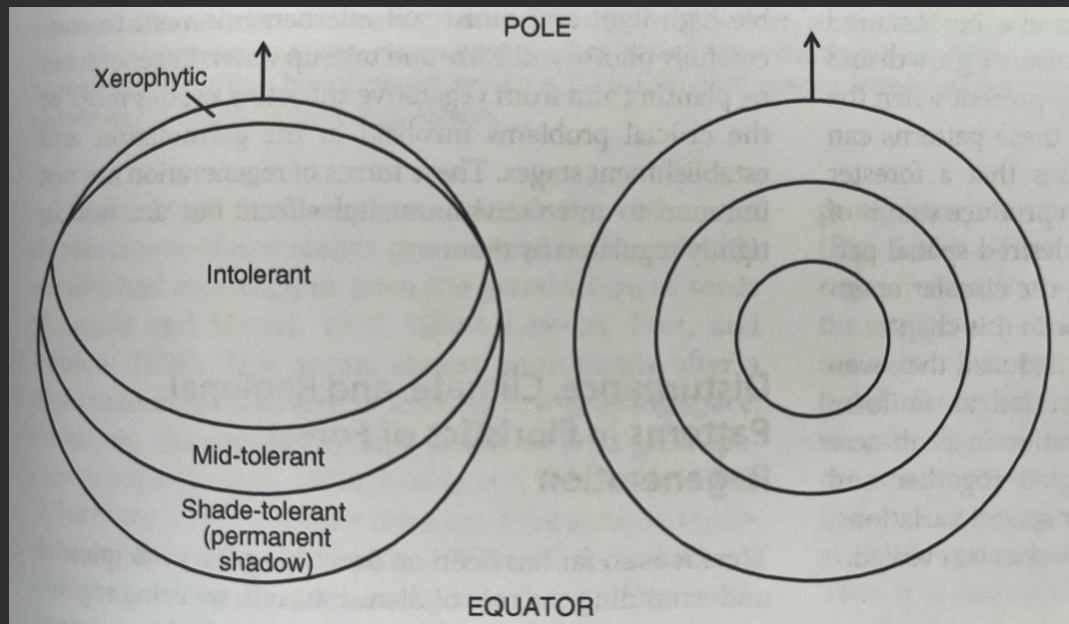
Seedling

↓
Sapling

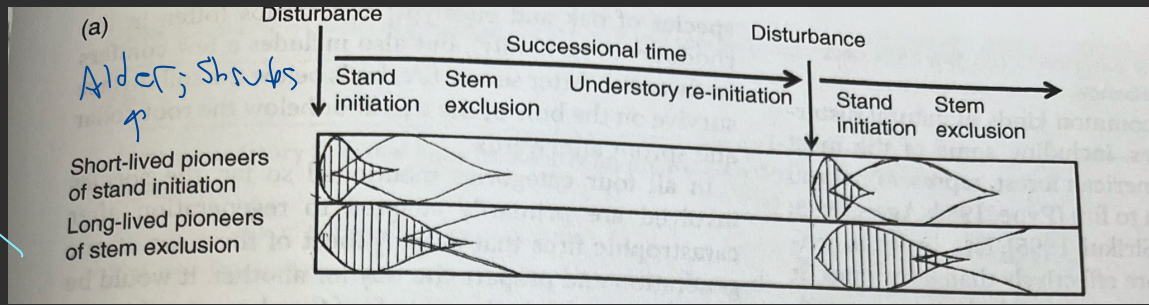
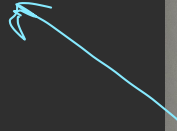


- Drought

- Frost



Jack pine

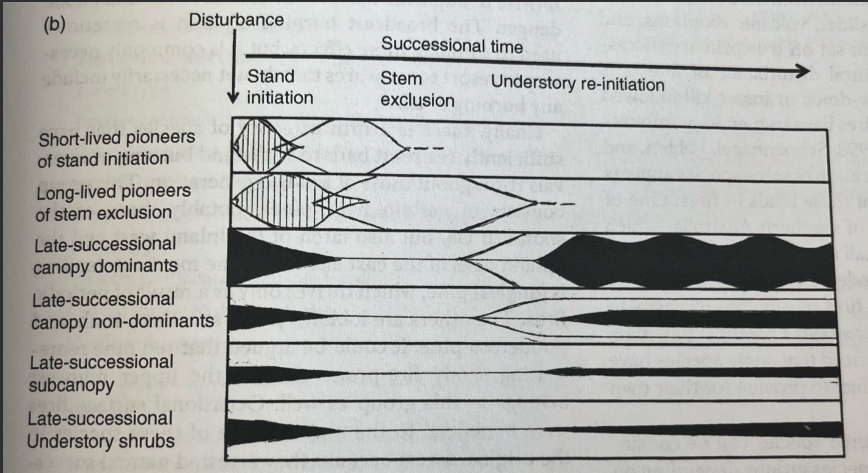


Regeneration and disturbance

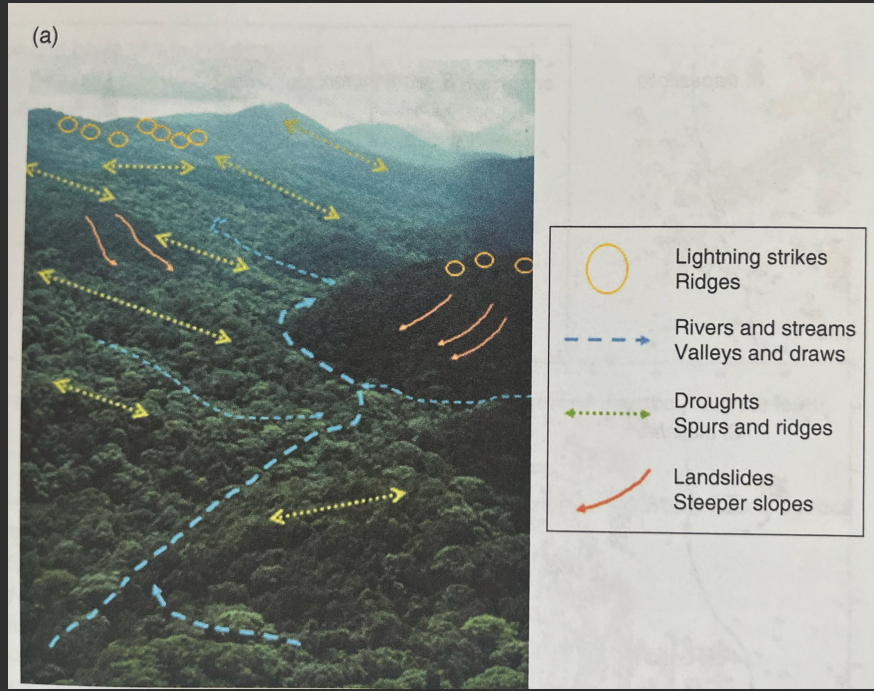
- High severity fire =

regeneration. why?

Serotinous cones are
fire dependent



Scale of
disturbance
matters!



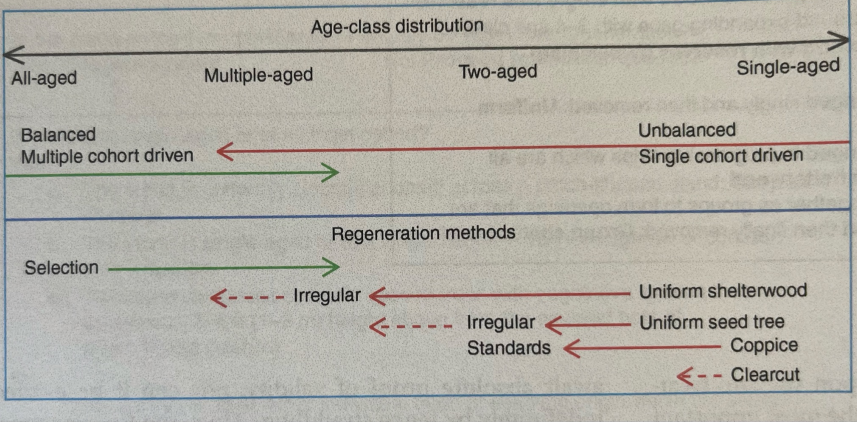
Intensity
and
Severity
of disturbance
matter too!



→ The affect of disturbance on ecosystem
→ The energy of the disturbance

Elements of Regeneration Tx

- 1) Harmony with goals.
- 2) Make considerations for regeneration
- 3) Efficient use of growing space
- 4) Control damaging agents
- 5) Protection of soil & water
- 6) Consider growth & yield
- 7) Not wasting \$



Count off in fours.

Sit with same numbers; you are experts on a silvicultural method

1= clear cut method

2= seed-tree method

3= shelter wood method

4= selection method

Spend 10 minutes researching your selection method.

What are

- a) silvicultural aspects of your system - what is the protocol?
- b) ecological aspects of your system - what disturbance does this mimic?
- c) aspects of regeneration associated with this method - how do trees regenerate?
- d) weaknesses or cautions of this method

After 10 minutes, mix up your groups so that there at least one of each number in each group. Spend 10 minutes teaching the others about your selection method.

Clearcut

Silvics.

→ Cut whole Stand



(A)



De Lombaerde 2020

Ecology

→ High severity disturbance

→ Any HS adapted system (Jack Pine, Lodgepole)

→ Even-aged

Region

→ Natural

from

adjacent stands - even-aged

or seed bank

or remaining

seedlings

Critiques

→ lack of diversity

- even-aged

Single species

stands

→ Edge

effects



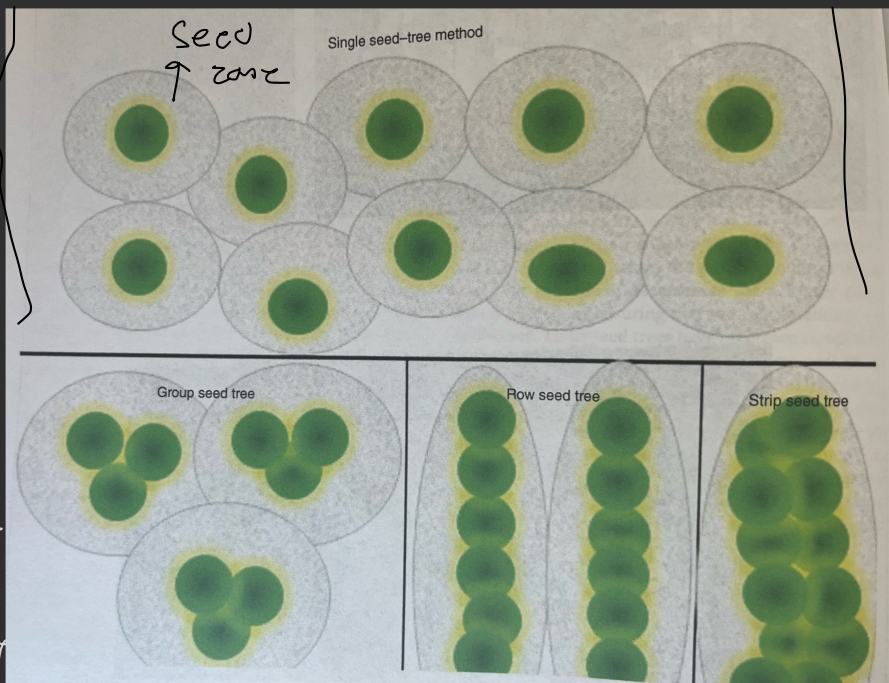


Ponderosa pine dog hair thicket

Seed - tree

→ Silvics = Remove most trees, leave groups of trees or single trees
seed dispersed from seed trees

→ Ecology = High Severity
but surviving large trees



Two aged

→ Pre-mature seeds; insect attack; what happens to residual trees? -

↳ Aesthetics / Wildlife / Economics

Mahogany

Mayan Ag

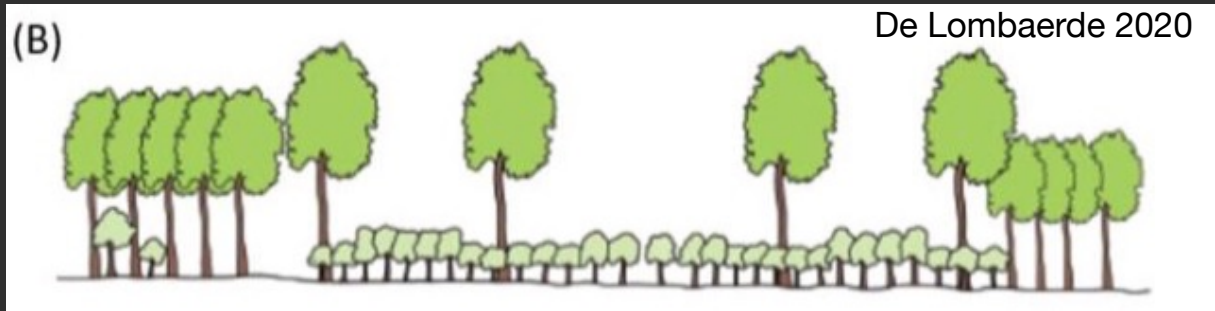


Shelterwood.

Silvics

→ Establish
even-aged stands
through progressive
cuts.

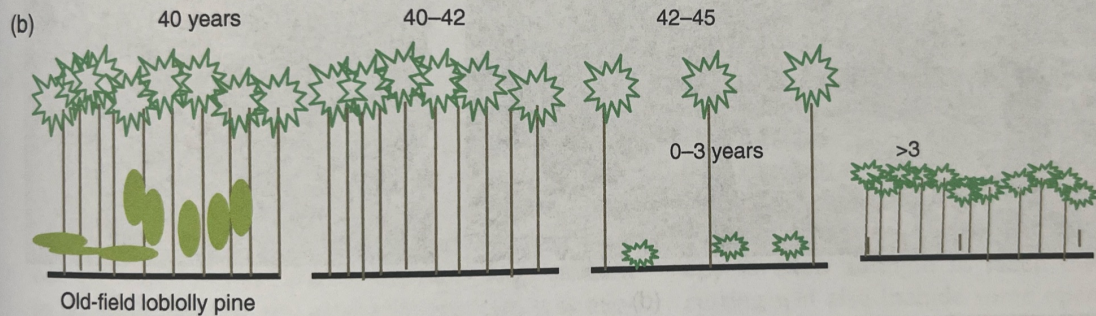
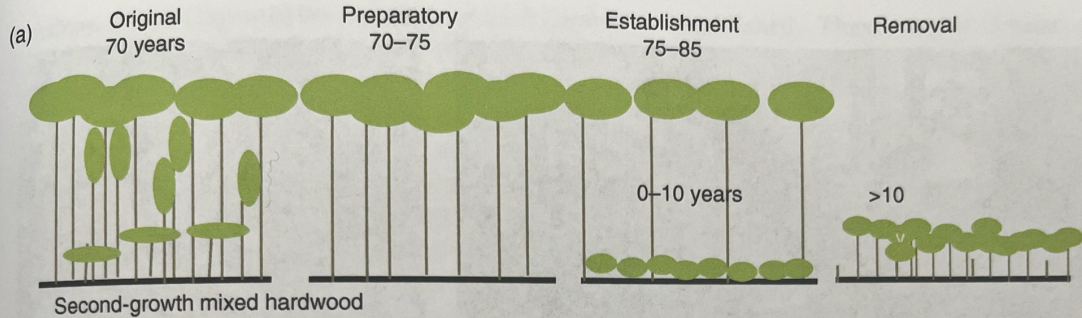
Continuous harvest
over the cutting cycle



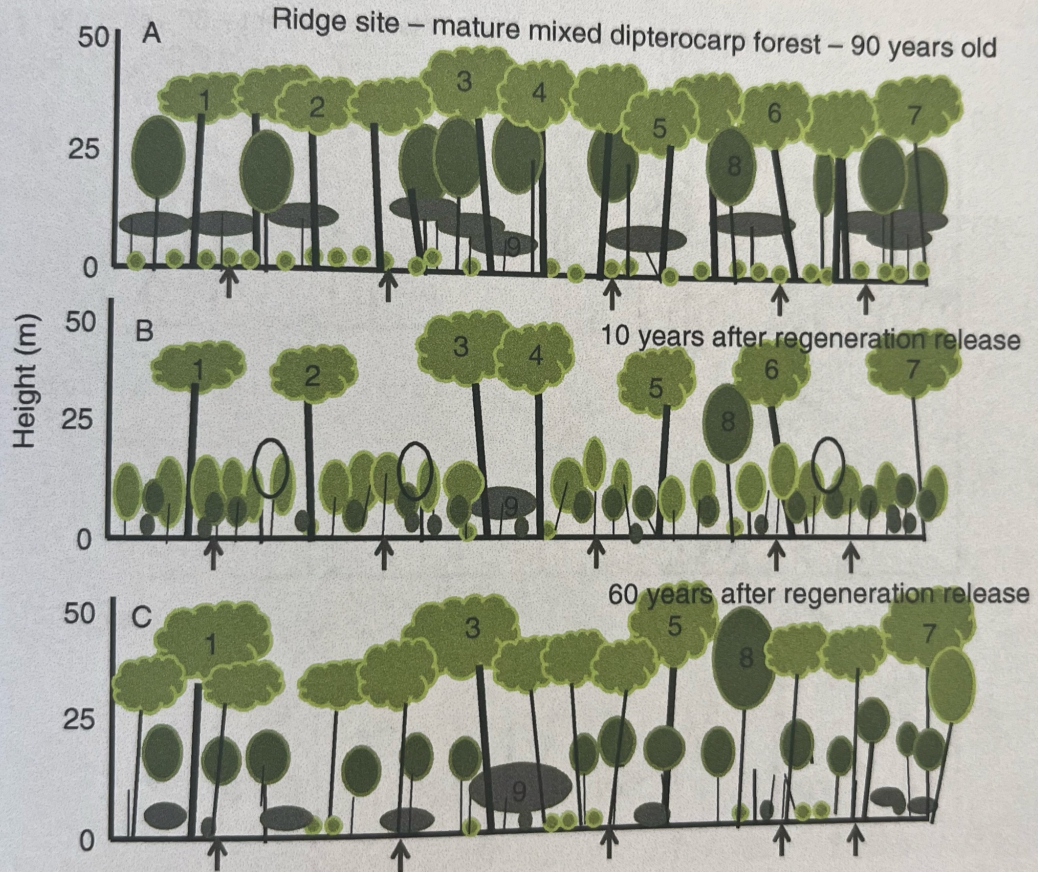
↑
Shelter trees

Ecology
→ Small group
and tree
teaching





(a)



Selection

Silvics →



in cycles; balanced multi-aged stands \llcorner^{\nearrow}

STS = Single tree selection

GS = Group selection

Ecology

- Windthrow / insect mortality
- Restoring stem exclusion

→ Timber removed in intervals

- Continuous removal of marketable logs



