Assessing and Prescribing Treatments for Degraded Hardwood Stands
Notes to Accompany PPT Slides
FWF 312 ---- 2020 online

Page 1

Low Quality Stands and Degraded Stands are phrases that often are used synonymously. They are not the same. Distinguish between the two from the 3rd slide.

Page 2

Photos of a low-quality stand on a poor Plateau site with a burning history. Note that trees have fire damage (hollow), but the outer portion of trees does not show fire damage.

Definition of degraded stands ------ absence of Acceptable Growing Stock (ACS) ------ new term/phrase that you should know. ACS are trees that have the potential to increase in value with growth ------ good form, desired species, vigorous crown, able to increase diameter increment.

Page 3

Premises as stated in slide

Causes of degraded stands ---- stated in slides

Overall, repeated harvesting occurs with no or little consideration for the future ---- no thought toward regeneration OR undesirable of trees are left b/c they do not pay their way out of the woods --- undesirable growing stock.

Page 4

Usually cannot turn a degraded stand into a desirable stand in one operation UNLESS actions are taken to initiate regeneration. Assessment is needed to determine if there are enough AGS trees to continue management, albeit perhaps at lower stocking levels.

Success is usually determined if the stand condition is better than you found it.

You may have enough trees (enough is determined by what is present (ACS) and mgmt. objectives) to continue management of existing stand. If not, then regenerating the stand would be worthwhile.

Example: Suppose you have a dozen or so young black walnut trees per acre with good form and walnut is a valuable species. The decision to be made: Is it worth to manage those 12 trees at less than desirable stocking to capture their value once they become larger and merchantable (perhaps another 20 years) or better to regenerate and have 20 years of growth on regenerating trees. Not an easy decision!
Procedures to assess the degraded stand by performing a stand inventory.

Determining tree vigor: young trees, with LCR>30%, balanced and full crowns, little or no branch dieback

Considerations/factors in judging degraded stands ---- refer to slide

Decision to be made: Continue mgmt. of degraded stand (rehabilitate) or if not enough AGS, then regenerate

AGS is defined. Assessing tree quality (refer to slide)

Photo is a tree with epicormic branches. Larger tree, but poor grade because of the branches (knots)

Assessing vigor ---- refer to slide

If not enough ACS trees to carry forward, then regenerate

Regeneration options if clearcutting is NOT an option

Group openings (Not group selection, could call them small patch cuts)

Refer to article by LeDoux on the silviculture website under lecture ---- “Opening Size LeDoux Article” ---- Typically, an opening of 1.25 acres will regenerate intolerant species in the middle and more intermediate species on the edges

Use of Two-Age Stands if desirable leave trees are present. This should be a review of a previous lecture for the last exam. Review slides on these pages and the publication which is also located on the silviculture website

Data from an experiment at the University of Kentucky School Forest where different harvest treatments were conducted in an effort to increase AGS in the stand
Commercial Clearcut where undesirable trees were left. After 22 years (remember trees were left on site), AGS stems composed 18% of the species, desirable species were only 7% of the stand, avg. height was 49 feet and avg dbh was 4.4 inches.

Silvicultural Clearcut or Clearfell. Compare to previous stand. Desired AGS and desired species of the regenerated stems were twice as much, and after 22 years, heights were greater and diameter from regeneration was similar.

Now, let’s do a crop tree release of the desirable species at age 10 (precommercial, so involves costs) after the clearfell. Look at the increase of AGS and percent desired species.

So, these operations have improved greatly the future stand compared to the existing stand where unacceptable trees were left. Some costs are involved, but increased productivity and desired species.

**Pages 12-13**

Recommendations for Degraded Stands

Refer to slides. Four points that I would like to emphasize.

1. If you have 50% AGS trees in your stand, then the stand is NOT degraded

2. Thinning in a degraded stand is usually not practical because most degraded stands are understocked

3. Another option is to apply rehabilitation in small areas or patches where AGS trees are present. Vice versa is also true ---- regenerate areas that do NOT have AGS trees. This means you are probably managing on a small area basis instead of a stand basis which would only be appropriate for small acreages or ownerships.

4. If regenerating, will probably have to do some vegetation control of undesirables, whether chemical or mechanical. Burning may not be appropriate if leaving AGS trees

**Pages 14-16**

Summary for Degraded Hardwood Management. Refer to slides. Straight-forward.

Remember, that when addressing degraded hardwoods, as well as most silvicultural operations, we are facilitating between sunlight which affects species composition and spacing/stocking which affects growth

Refer to Extension pub on Degraded Stands on the silviculture website to review the material in this lecture!