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Comments: Please consider in the definition of "old growth" and "mature":

1. Each vegetation community and habitat type has its unique characteristics when it achieves the mature stage.  
2. Amongst the vegetation communities I am familiar with (mountains of California, lowlands to alpine ridges in Southcentral Alaska, and coastal lowlands to mountain ridges in Puerto Rico) these are the characteristics that I think are in common:

A) For the vegetation type, the mature trees tend to be present in the highest canopy structure level.

B) Mature trees are not necessarily always the tallest trees, nor the tallest shrubs, nor the tallest lichen in alpine.

C) Old Growth vegetation communities are dominated by plant species with ecologically slower growing species. Once established these slower growing species have ecological defenses that allow it to persist through the typical disturbances of the area (drought - deep roots, fire - thick bark and dropping limbs, rainforest - aerial roots, dense heartwood).

D) Mature vegetation communities are the generally the state that a vegetation communities will remain at unless a disturbance occurs (fire, storm, wind event, avalanche); thus mature vegetation community can also be defined similar to the last stage of succession.

E) Old Growth is not necessarily the same as virgin or untouched by humans.

F) Old Growth and mature habitats do provide a higher abundance of fungi, rotten wood and cavities for wildlife than the earlier successional stages.

G) One difference between mature and old growth, is that old growth tends to have a greater variety of vegetation components in all stages of decay such that all stages of life are present - from seeds to stage 4 decomposition - but decay is more abundant than establishment.

H) Mature forests have been at the climax mature stage, over time develop additional qualities of an old growth forest: wide range in size, texture, and variety in form of the vegetation; specimens at towards the end of the range of life expectancy of the species are present.

I) In forests/vegetation communities that have hurricanes, the height of trees do not signify the maturity of the stand, because the wind effects determine the top height of the canopy. In these forests, rather the width of trees increases as trees age, and the growth form becomes more varied as stems merge with growth, cavities form, roots reach out and form buttresses.

J) Old Growth and Mature forests, in some ecosystems, should have small openings or patches of establishment.

K) Wildlife that use cavities, decayed wood, or consume fungi are present in mature and old growth vegetation.

L) Mature and old growth vegetation communities have the greatest canopy closure of the successional stages for the vegetation community. For some communities this is nearly 100% canopy closure, for some communities this is less.

M) Of the seral stages, the old growth stages provides the highest complexity structure, variety of structure and generally the largest of the tree boles.