Challenges for Metropolitan Old Growth Forest Janet A. Morrison

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Thank you for the chance to present some of my work from the NYBG Forest. I want to present it to you in the context of thinking about challenges for old growth forests that still occur in metropolitan regions.

Determining whether a forest qualifies as old growth is an interesting goal, and the asnwer to it can have important benefits for the preservation of forest stands. But my remarks today are applicable to any mature forest in the region. By that I mean one that has a closed canopy and a relatively stable community composition, what has previously been termed a climax forest. The preservation of old forests, be they official old growth or just old, is a goal that I think we can all agree upon.

My coincern here is, once those forests have met the cahllenge of being preserved in terms of their land, such as the NYBG Forest, what challenges remain that need to be met in order to ensure their contuned survival as intact functionsing matuyre ecosystems?

I can not hope to anmswer these questions, but I do hope to flag some imporant xconmsiderations in this area.



Althoufgh I am not going to address this part of the problem, I must at least begin by acknowledging the most impoartna challenge faced by metropolitan old growth - and all forests near cititres, for that matter.

Their need to be preserved rests on acceptance by the public that they have value, and we have heard about that already today. This public acceptance is a great challenge in metro areas since there are so many different interstesd tied to land use - highway construction andstrip malls, baseball fields and schools, housing, indistry, etc. It is the challenge to groups like MFC to make clear how, in the case of high quality old forest, those economic and socail interests are outweighed by the biological significane and ecosystem services of intact mature forest. Then, of course, public acceptance of this stance must be translated into political action.



That said, let us move on to think about the biologucal challanges that face these forests in metropolitan areas.

First we must realize that these foresst house an unually (for us) high proprtion of old invididuals. What might this mean for the future of the forest? How should we think about canopy death and future recrutiment? I'll highlight the role of deer and invasive species. Second, we need to think about how old forests might be affected by natural enemeis - diseases and insecst pests, and how that may be related to the chronic environemntal stresses these forests are subject to.

Finally, are there implications for manmagement of these forests, and what should those management goals be?



As you know, the vast majority of forested land in the metropolitam region around New York City is what we call second growth; it grew up only after farmland was abandoned. The typical scenario is that after abandonment the forest grows rather unifroimly until the canopy closes. With aclosed canopy there is limited grwoth opf new trees underneath due to light limitation, but as the trees age some will die from various causes, and canopy gasp will form. At this stage, trees can grow to replace the canopy of those early successional trees, and the replacemnts are liekly to be trees that are more shade tolerant, that have been able to recruit seedling into the populationa dn lie in wait untoil a canopy gap opens up. Eventually the canopy will be replaced by these types of species, and we consider that to be a mature forest. It slongevity from that point forward determines whther it is old growth or not, depedning on your definiton of old growth.

So, the contunation of an old forest will depend on the recruitment of seedlings into the seedling bank, ready to replace trees in canopy gaps.

Under metroplitam conmdtions, this can be a major challenge.



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Model for rate of physical disturbance

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Natural enemies and accelrated mortality in old forests





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Slide 17



Slide 18







The need for recruitment





















Conclusions