Americans and Their Forests
Exam 3

Credit:

<table>
<thead>
<tr>
<th>Component</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Definitions</td>
<td>10 @ 2 points</td>
</tr>
<tr>
<td>Short answer questions</td>
<td>20 @ 3 points</td>
</tr>
<tr>
<td>Essay</td>
<td>20 points</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
</tr>
<tr>
<td>Extra credit</td>
<td>5</td>
</tr>
</tbody>
</table>

Please be sure to answer all parts of a question!

I. Definitions (2 points apiece)

Please define the following terms with reference to forest history.

1. Slash _________________________________________________________________
2. Smokey _______________________________________________________________ 
3. Perishable food _________________________________________________________
4. Beaver _______________________________________________________________
5. Chestnut ______________________________________________________________
6. Forest mosaic _________________________________________________________
7. Lawn ________________________________________________________________
8. Even aged ____________________________________________________________
9. Plow line _____________________________________________________________
10. Ground fire __________________________________________________________
11. Adirondack Preserve ________________________________________________
II. Short answer (3 points apiece)

1. Suggest two reasons why Eastern agriculture collapsed in the early 20\textsuperscript{th} century. Please be specific.
   a. ______________________________________________________________
   b. ______________________________________________________________

2. Draw a cross section of a modern oak tree that barely survived a severe fire in 1836.

3. We now have more white-tailed deer in the Eastern United States than ever. Suggest three reasons for their unprecedented recent success.
   a. ______________________________________________________________
   b. ______________________________________________________________
   c. ______________________________________________________________

4. Suggest 2 ways forest fragmentation affects plants and animals living in the surviving forest.
   a. ______________________________________________________________
   b. ______________________________________________________________

5. Three things essential to fire are carbon compounds, oxygen, and pre-heating. How can this knowledge be used to fight a forest fire?
6. Suggest two important lessons taken from the 1910 Idaho fire.
   a. ________________________________________________________________
   b. ________________________________________________________________

7. Is regrowth forest similar to old growth in the eastern United States? Give four important differences.
   a. ________________________________________________________________
   b. ________________________________________________________________
   c. ________________________________________________________________
   d. ________________________________________________________________

8. If the US Forest Service is the most efficient fire fighting force in the world, why have we been overwhelmed by a series of severe fires in the last 15 years?

9. Through the 19th Century, the timber industry ignored fire. In the 20th Century, they became acutely conscious of it. Given that the frequency of fire was the same in both periods, what caused them to change their views?

10. What type of plants would you find in an agricultural field this many years after abandonment?
11. Where is forest likely to appear first in a post-agricultural landscape? Why?

12. Match each of these eastern animal species with their modern status:

- R Increasing rapidly
- E Extinct
- I Increasing slowly
- S Stable populations
- D Declining
- NA Not applicable

_____ Ruffed grouse  _____ Grey wolf
_____ Coho salmon  _____ White tailed deer
_____ Black bear  _____ Beaver

13. The American chestnut disappeared very rapidly from eastern forests because

a. ____________________________________________________

b. ____________________________________________________

c. ____________________________________________________

14. Sketch in the locations of regrowth forest on this post-agricultural landscape:
15. The purpose of smokejumping is to get to a fire _________ to minimize its ____________ when you fight it.

16. Indicate on the map where you would start a back fire. Explain what this back fire would accomplish for you.

17. Which tree species are you likely to encounter in the regrowth eastern forest?
   - _____ White oak
   - _____ American chestnut
   - _____ Beech
   - _____ Douglas fir
   - _____ Tulip poplar
   - _____ Longleaf pine

18. Why (according to William Greeley, chief forester 1920-1932) should fires be stopped before they reach 10 acres (“Aggressive Initial Attack”)?
   a. ________________________________________________________________
   b. ________________________________________________________________

19. USFS fire suppression in the early and mid 20th century was how effective stopping fires (check one)?
   - _____ No effect at all – how could a major ecosystem process such as fire be stopped by man?
   - _____ Marginally effective, cutting fires around campsites and villages.
   - _____ Marginally effective, but especially in Kansas and Nebraska.
   - _____ Phenomenally effective, reducing the natural occurrence of fire ca. 90%.
20. How can we begin to reduce the threat of severe wildfire in the American West?
   a. ________________________________________________________________
   b. ________________________________________________________________
   c. ________________________________________________________________

III. Essay (20 points)

Please write a 1-2 page essay on one of the following topics. Be sure to address all parts of the question.

1. Americans still have a love-hate relationship with forest. Discuss how these emotions are played out in modern suburbia. Please be specific.

2. We now have more Eastern forest at any time in the last 200 years, but paradoxically the region also supports the largest human population ever. Explain the reasons for this situation in the context of forest history. Please be specific.

3. How has 80-90 years of fire suppression changed forests of the American West? Can we return to the pre-suppression condition? What obstacles stand in our way? Please be specific.

Answers

I. Definitions

1. Dead limbs and tops left over after cutting. Dries and burns easily.
2. Bear trademark of US Forest Service
3. Had to be grown near eastern cities, so prevented forest regrowth.
4. An eastern forest animal slowly returning as forest returns.
5. Important eastern forest tree wiped out by a fungus in the early 20th century.
6. The patchwork of forest ages created by abandonment from agriculture.
7. Large bird, thought extinct, which was recently rediscovered in regrowth forest in Arkansas/Louisiana.

8. Age-homogeneous forest arising after abandonment from agriculture.

9. A green moat designed to keep creepy forest away from your home.

10. A low, cool fire burning through the leaf litter and fallen wood on the forest floor.


II. Short answer

1. a. end of wartime purchase of farm produce by the government
   b. inability of farms to compete with industrial wages
   c. switch to cars make pastures unnecessary for horses
   d. refrigeration allows produce to be shipped from distant regions
   e. good roads

2. Tree trunk showing annual rings and severe scarring, followed by healing around the wound.

3. a. intentional reintroduction from Michigan
   b. lawn is good food
   c. preference for old field habitat, which is very common
   d. no natural predators
   e. hunting is impossible in suburbs

4. a. edge effects
   b. reduced forest size cannot accommodate large home ranges
   c. many negative effects in forest streams (silt, variation in flow, dissolved O2)

5. – fight fire at night when the air is cooler
   - burn away accumulated fuel with back fires
   - spray water on the fire to absorb heat

6. a. communication with fire crews is essential
   b. fires should be fought early before they become large
   c. individual rangers cannot stop a fire

7. Regrowth has
   a. even age distribution
   b. species-poor
   c. no American Chestnut, mountain lions, wolves
   d. too many deer
e. highly fragmented
f. long, thin strips of forest

8. Unnatural accumulation of fuel in the twentieth century.

9. In the 19th Century they bought forests just before cutting them. In the 20th Century, they bought forest well ahead of cutting, exposing them to the risk of fire while they got around to cutting.

10. 1-3 years: short lived agricultural weeds, e.g. dock, ragweed, lambs quarters

2-8 years: longer-lived perennial herbs, e.g. goldenrod, milkweed

10 – 100 years: light-requiring tree species, e.g. tulip poplar, red maple

40 - ? years: shade-tolerant tree species, e.g. oaks, hickory, beech

11. Steep slopes, rocky hill tops, areas of poor soil, swamps – because they are of low agricultural quality.

12.
   D ruffed grouse   E grey wolf
   NA salmon         R deer
   I bear            I beaver

13. a. high density allowed rapid spread of disease
    b. dispersal of airborne spores
    c. dispersal of insect-borne spores
    d. lack of natural resistance to the fungus

14. Narrow strips along the road or stream.

15. quickly, size

16. The backfire would be started downwind of the major fire on the left bank of the stream. It would clear away fuel, thereby creating a large firebreak.

17. oak, beech, tulip poplar

18. Small fires are cheaper and easier to put out than large ones.

19. Phenomenally effective

20. a. reduce fuel by prescribed burning
b. let natural fires burn

c. prevent building in fire-prone areas.

III. Essay

1. Love-hate

   Love: trees in yards, desire to live in the countryside, animal watching, kids playing in the woods, price of houses next to forest.

   Hate: raking leaves, planting lawn, green moat, cleaning up the “jungle”, white paint, straight lines in architecture

2. Forest vs. population

   Both forest and suburbia have grown at the expense of agricultural land. The “forest” is highly fragmented, not resembling the pre-settlement forest in many respects. In the future, suburbia will probably cause the decline of forest.

3. Fire suppression

   Consequences

   Loss of meadows
   Tying up nutrients
   No regeneration of important tree species
   Spread of disease
   Major fires

   Obstacles

   Release of CO2
   Severe fires
   Wildland urban conflict