1. Name two invasive pest species that have been introduced into New Mexico.

2. What types of insects cause damage to buds and shoots?

3. The presence of mud shelter tubes on wood, walls and tree trunks could indicate what type of insect?

4. The fungus that causes stain in the sapwood and heartwood of aspens is ____.

5. Categorize the following insects and diseases by: Defoliator(A), Sap-sucking (B), Gall Former(C), Bark Beetle(D), Bud and Shoot Insect(E), Wood Product Insects(F), Foliar Disease (G), Stem and Cone Rust(H), and Non-Infectious Disorders(I)

   - Aphids – Black Leaf Spot – Burls –
   - Carpenter Ants – Cooler Spruce Gall Adelgid – Douglas-fir Tussock Moth –
   - Elytroderma Needle Cast – Fall Webworm – Fir Broom Rust -
   - Fir Engraver – New Mexico Fir Looper – Pine-feeding Needleminers -
   - Pine Engravers – Pine Needle Scale – Pine Tip Moths -
   - Pinyon Needle Scale – Spruce Broom Rust – H Termites - F
   - Western Pine Beetle – Western Spruce Budworm – Western Tent Caterpillar -

6. What roll do forest insects and pathogens play in the dynamic process of our Southwestern forests?

7. Which bark beetle has horizontal egg chamber with vertical larval galleries?

8. A spruce tree has a dense, compact yellow growth on one of its branches. The branch is swollen where the growth is. What is the cause?

9. Elytroderma Needle Cast is caused by a fungus. T or F

10. If a Douglas-fir shows signs of top kill and there are small cocoons and egg mass cases attached to the underside of twigs and branches what insect would be suspect?

11. Describe a Burl.

12. This larvae of this insect mine inside new shoots in spring and early summer, killing them. Pitch tents, frass and silk webbing are all signs of this insect. What is it?

13. Blue Stain Fungi kills the tree by ____.

14. Chickweeds are the alternate host for what disease?

15. Carpenter Ants do not eat wood but excavate galleries for nesting purposes. T or F

16. How are True Mistletoe seeds spread?
17. Explain the differences between Pinyon Needle Scale and Pine Needle Scale.

18. What should be checked to determine if a witches broom is caused by a fungi or dwarf mistletoe?

19. Flat-headed borers are also known as ______.

20. Do wood borers or bark beetles attack freshly cut, injured, dying, or recently dead trees?

21. Which bark beetle has a nuptial chamber with one to many galleries radiating from it?

22. A large web is in the branches of a cottonwood in May. Is this most likely Fall Webworm or Western Tent Caterpillar?

23. The rear end of which bark beetle is round and doesn’t have any spines?

24. If damage is confined to the leaves, buds and shoots of the tree and the foliage is yellow, brown, or spotted with no insects present, what type of forest disease or insect would be suspect of causing the problem?

25. The abdomen of which bark beetle is incurved at the rear?

26. Name the two most destructive defoliators in the Southwestern Region.

27. Name three species of bark beetles?

28. Round-headed borers are also known as ______.

29. Explain the differences between flat-headed borers and round-headed borers.

30. The damage is confined to the branches and stems of the tree and there is reddish, fine boring dust and/or resin on the bark and around the base of the tree. What type of insect or disease would be suspect of causing the problem?

31. Name three types of termites.

32. An aspen leaf has blackish spots that have an irregular outline and a yellowish border. What ailment is the tree suffering from?

33. Which bark beetle has a pronounced concavity at the rear end and is bordered on either side by three to six tooth-like spines?

34. Dwarf Mistletoe is caused by Elytroderma Needle Cast. T or F

35. Elytroderma Needle Cast can kill a tree if more than _____ of the tree is infected.

36. Name two ways that sap-sucking insects injure trees?

37. Blue Stain Fungi is introduced to the tree by______.

38. Where do Carpenter Ants reside?

39. What is “honeydew” and what causes it?
40. Which bark beetle egg chamber has a maze-like appearance?

41. Granular larval borings are found that penetrate into the sapwood of the tree. What type of insect or disease would be suspect of causing the problem?

42. When the tree shows signs of the current foliage being partially or fully chewed over the entire tree, has the expanding buds mined and has shoots webbed into feeding shelters what insect would be suspect?

43. How long does it take for True Mistletoe shoots to develop after the initial infection?

44. Explain the biology of the White Pine Blister Rust.

45. Pine trees can sustain repeated defoliation over several years because they store large food supplies and can refoliate in the same year. T or F

46. What are three signs of sap-sucking insect injury?

47. What are considered one of the most destructive insects in western coniferous forests?

48. How are Dwarf Mistletoe seeds spread?

49. What trees are hosts for the Cooley Spruce Gall Adelgid and how long is its life cycle?

50. What is the alternate host for White Pine Blister Rust?

51. A Ponderosa pine has faded yellow-brown needles that have tiny holes in them. Is the tree suffering from a defoliator or foliar disease?

52. Match these words to their definitions:

<table>
<thead>
<tr>
<th>Word</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abdomen</td>
<td>An organism living in and getting its food from dead organic material</td>
</tr>
<tr>
<td>Cambium</td>
<td>An organ or structure consisting of tissue in tree trunks</td>
</tr>
<tr>
<td>Declivity</td>
<td>Vascular tissue that conducts water and mineral salts</td>
</tr>
<tr>
<td>Endophytic</td>
<td>Lay or deposit eggs</td>
</tr>
<tr>
<td>Gall</td>
<td>Throughout the plant host tissues, usually surviving from year to year</td>
</tr>
<tr>
<td>Heterocyclic</td>
<td>An organ of the insect resembling the adult</td>
</tr>
<tr>
<td>Instar</td>
<td>An organ of the insect resembling the adult</td>
</tr>
<tr>
<td>Mycangia</td>
<td>An organ of the insect resembling the adult</td>
</tr>
<tr>
<td>Obligate parasite</td>
<td>A mature organism that is dependent on a host for its survival and replication.</td>
</tr>
<tr>
<td>Pathogen</td>
<td>An organ of the insect resembling the adult</td>
</tr>
<tr>
<td>Prothorax</td>
<td>An organ of the insect resembling the adult</td>
</tr>
<tr>
<td>Saprophyte</td>
<td>An organ of the insect resembling the adult</td>
</tr>
<tr>
<td>Subcortical</td>
<td>An organ of the insect resembling the adult</td>
</tr>
<tr>
<td>Xylem</td>
<td>An organ of the insect resembling the adult</td>
</tr>
</tbody>
</table>

A.____ An organism living in and getting its food from dead organic material
B.____ Vascular tissue that conducts water and mineral salts
C.____ Lay or deposit eggs
D.____ Throughout the plant host tissues, usually surviving from year to year
E.____ Central mass of tissue in tree trunks
F.____ Immature form of an insect resembling the adult
G. The reproductive unit of fungi consisting of one or more cells
H. Pitch or resin flow of a host tree in response to disease
I. Below the bark
J. A single branch of a mycelium
K. The dorsal plate of the prothorax
L. Posterior part of the insect’s main body divisions
M. Chemicals produced by one individual to affect or alter the behavior of another individual of the same species
N. An organism living in or on another living organism (host) and obtaining its food form the host
O. An organism such as an insect that transmits a pathogen
P. An organism capable of existing only as a parasite on a live host
Q. Dead plant cells or tissues
R. Fruiting body of a fungus that produces spores
S. The vegetative feeding structure of a fungus
T. Structure found on some insects used for the transportation of symbiotic fungi from one host to another
U. Change in form and structure between different life stages of insects
V. Immature form of an insect
W. Breathing pore in the epidermis of a plant
X. A living organism
Y. An organism or virus capable of causing disease on a host
Z. Solid insect excrement, usually in small pellets
AA. A localized area of discolored, diseased tissue
BB. Dorsal tubular processes on the posterior portion of the abdomen
CC. A plant that is invaded by a parasite
DD. A term used to describe the descending distal slope of beetle forewings
EE. Thick-bodied larva, usually sluggish
FF. Inactive stage of an insect, a transitional stage from larva to adult
GG. Layer of cells between xylem and bark
HH. Shelters occupied during winter by dormant insects
II. A specialized form of mycelium produced by certain fungi
JJ. An abnormal growth of plant tissue
KK. An organism incapable of producing its own food supply by photosynthesis, usually having reproductive spores
LL. Typical, nonepidemic population
MM. Interference of the normal functioning of a plant that is caused by some non-living factor
NN. Healing tissue of trees on branches, boles, or roots that attempts to grow over scars or wounds
OO. Vascular tissue that conducts synthesized foods through the plant
PP. Ability to produce young
QQ. Fungi that requires two different hosts to complete their life cycle
RR. An unseasonable yellowing of the foliage, may occur in bands on needles
SS. The dispersal life stage of aphids and scale insects
TT. Reproducing by eggs that develop without being fertilized
UU. The act of damaging the cambium completely around the circumference of the stem or branch
VV. Male flowers and female flowers on different individual plants
WW. Hardened forewings of beetles that serve to protect the functional posterior wings
XX. The stage of an insect between successive molts
YY. The anterior of the three thoracic segments
ZZ. An organism living within tissues of a live plant