

Forestry Answer Sheet

CWRU Invitational



February 24th, 2024

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Team Name and Number: _____

Instructions:

- This is an answer sheet. Write all answers in this packet, and **do not write on the stations.**

- You have two minutes and fifteen seconds to complete each station. Movement time between stations is included within this time.

- Only the use of a single 2” or smaller three-ring binder, commercially available field guide, and an unmodified copy of the 2024 National Tree List is permitted.

- Specific questions are marked as tiebreakers and will be used to determine tie order.

- All multiple choice questions have exactly one answer unless otherwise specified.

18. (1 point) A. **B.** C. D. E.

19. (1 point) A. B. **C.** D.

20. (1 point) _____ **Ailanthus altissima** _____

Station 3

21. (1 point) _____ **White fir** _____

22. (1 point) _____ **Abies concolor** _____

23. (1 point) _____ **2** _____

24. (1 point) A. **B.** **C.** D.

25. (1 point) **A.** **B.** **C.** D.

26. (1 point) _____ **2** _____

27. (1 point) A. **B.** C. D.

28. (2 points)

Solution: Vessel elements in hardwoods/angiosperms (1) are larger than tracheids (1) in softwoods/gymnosperms (Give point for identifying vessel elements and one for recognition that they are larger than tracheids)

29. (1 point) **A.** B. C. D.

Station 4

30. (1 point) _____ **Quercus virginiana** _____

31. (1 point) _____ **Least Concern** _____

32. (1 point) A. **B.** C. D. E.

33. (1 point) _____ **Georgia** _____

34. (1 point) A. **B.** C. D. **E.**

35. (2 points)

Solution: Cotyledons (1 for any mention) are kept underneath the ground (1)

36. (1 point) A. **B.** C. D.

37. (2 points)

Solution: No (1), too cold (1) (only accept something referring to temperature because USDA Hardiness zones are defined by temperature)

Station 5

38. (2 points) _____ **American basswood** _____

39. (1 point) _____ **Cotyledons** _____

40. (1 point) A. **B.** C. D.

41. (1 point) A. B. **C.** D.

42. (1 point) **A.** B. C. D.

43. (1 point) **A.** B. C. **D.**

44. (1 point) A. **B.** C. D. E. F.

45. (1 point) **A.** B. C. D.

Station 6

46. (1 point) _____ **Fagaceae** _____

47. (1 point) _____ **Red oaks OR Red oaks-black oaks OR Erythrobalanus** _____

48. (1 point) _____ **Red oak** _____

49. (1 point) **A.** B. C. D.

50. (1 point) A. **B.** C. D.

51. (1 point) **A. B. C. D.**

52. (1 point) _____ **New Jersey** _____

53. (2 points)

Solution: A tylose is an extension of a parenchyma cell into nearby xylem (1 for anything about it being from parenchyma extending into vascular tissue). Found in xylem (1)

54. (2 points)

Solution: White oak wood (1), bestows rot resistance on to the wood (1)

55. (1 point) A. **B.** C.

Station 7

56. (1 point) A. B. C. D. **E.**

57. (1 point) _____ **Fabaceae** _____

58. (2 points)

Solution: Complete flowers have all 4 whorls (1) (sepals, petals, stamen, carpel), incomplete are lacking at least one (1)

59. (1 point) **A.** B. C.

60. (1 point) A. **B.** C. D. E.

61. (1 point) **A.** B. C. D. E.

62. (1 point) A. B. C. D. **E.**

63. (1 point) A. B. **C.** D. E.

64. (2 points)

Solution: Stems conduct photosynthesis (1), Arid environment (anything about desert or lack of water earns 1 point)

65. (2 points)

Solution: C4 (1), C4 is more efficient with water OR C4 is better suited to arid environments (1 for either)

Station 8

66. (1 point) A. **B.** C. D. E.

67. (1 point) _____ **Near threatened or NT** _____

68. (1 point) _____ **Tsuga** _____

69. (2 points)

Solution: Sessile means that there is no stalk attaching the cone to the twig. The cones are sessile.

70. (2 points)

Solution: Hemlock Woolly Adelgid, Asia

71. (2 points)

Solution: Late seral stages, shade tolerance

Station 9

72. (1 point) A. **B.** C. D. **E.** F. G.

73. (2 points)

Solution: Fruit (1), boil (1) to remove to tannins

74. (1 point) _____ **Aesculus glabra** _____

75. (2 points)

Solution: polygamomonoecious means that it has male, female, and bisexual flowers on the same tree (1), this tree usually has both male and bisexual flowers (1)

76. (1 point) _____ **3-7 or 3a-7b** _____

77. (3 points)

Solution: Browning of leaf margins/needles or yellowing of veins (1), (1 point for any of the following) Good watering practices (watering a lot infrequently), not using excess fertilizer, pruning sprouts and affected areas, winter watering

Station 10

78. (1 point) _____ **Pin cherry** _____

79. (1 point) _____ **Prunus pensylvanica** _____

80. (2 points)

Solution: Monoecious means that it has unisexual male and female flowers on the same tree (1). This tree is bisexual (1), so it is sometimes considered monoecious but is really something different

81. (2 points)

Solution: Fire burns and kills trees (1), the seed bank in the soil can survive fire and regrow (1)

82. (2 points)

Solution: Auxin, spraying it on a tree would kill it (1) because it is a pesticide (also accept uncontrollable growth because that is what causes death)

83. (1 point)

Solution: Yes because it is an angiosperm/has flowers/has fruit (needs both yes and reason for any points)

84. (1 point) _____ **Drupes** _____

Station 11

85. (1 point) _____ **Liriodendron tulipifera** _____

86. (1 point) _____ **3** _____

87. (2 points)

Solution: Clearcutting, cutting most or all of the trees in an area down

88. (1 point) A. **B.** C. D.

89. (3 points)

Solution: Secondary succession (1), yes because it is shade intolerant (1) or early seral/a pioneer (1)

90. (2 points)

Solution: No (1), black walnut is allelopathic/produces juglone/produces chemical that inhibit growth around it (1 for any of these)

91. (1 point) _____ **Leaves** _____

92. (1 point) A. **B.** C. D. **E.** F.

Station 12

93. (1 point) _____ **Picea** _____

94. (1 point) _____ **Red spruce** _____

95. (1 point) **A.** B. C. D.

96. (1 point) _____ **Spruce budworm** _____

97. (2 points) _____ **Black spruce/Picea mariana**

98. (2 points)

Solution: The Kraft process is a method of paper production, yes

99. (1 point) **A.** B. C. D. E.

100. (2 points)

Solution: Involves cutting down trees of other species than the desired species (1, needs to specify that mostly other species are cut down) to expose the forest floor to light (1)

Station 13

101. (1 point) **A.** B. C. D.

102. (1 point) **A.** B. C. D.

103. (1 point) A. B. C. **D.**

104. (1 point) A. B. **C.** D.

105. (1 point) **A.** B. C. D.

106. (1 point) _____ **Umbellularia californica**

107. (1 point) _____ **Umbellulone**

108. (1 point) _____ **Image B, myrtlewood**

Station 14

109. (1 point) _____ **Salicaceae**

110. (1 point) A. B. **C.** D.

111. (1 point) A. B. C. **D.**

112. (1 point) A. B. **C.** D.

113. (2 points)

Solution: "Populus" is Latin for "people" and is the classical Latin name for the tree. "Angustifolia" is Latin for "narrow leaf".

114. (2 points)

Solution: Male, females produce clouds of cottony seeds that are annoying

115. (2 points)

Solution: Zinc/Cadmium (1 for either), Phytoextraction

116. (2 points)

Solution: DBH is diameter at breast height, measures the diameter of the tree trunk

117. (1 point) _____ **Populus alba** _____

Station 15

118. (1 point) _____ **Giant Sequoia** _____

119. (1 point) _____ **General Sherman** _____

120. (1 point) _____ **Dendrochronology** _____

121. (1 point) _____ **Secondary growth** _____

122. (2 points)

Solution: Longhorn beetle and Douglas squirrel

123. (1 point) A. B. C. D. E. F.

124. (1 point) **A.** B. **C.** **D.** E.

125. (1 point) _____ **4, also accept 3**

Station 16

126. (1 point) _____ **Rosaceae**

127. (1 point) A. B. C. **D.**

128. (1 point) **A.** B. C. D.

129. (2 points)

Solution: Wide spreading roots, fast growth, growth in dry habitats

130. (2 points)

Solution: Los Angeles (1), California, branches were picked a lot for Christmas

131. (1 point) A. **B.** C. D.

132. (1 point) A. **B.** C. D.

133. (1 point) A. **B.** C. D.

Station 17

134. (2 points)

Solution: multiple develops from multiple flowers, aggregate develops from multiple ovaries within a single flower

135. (1 point) A. **B.** C. D.

136. (1 point) _____ **Maclura pomifera** _____

137. (1 point) _____ **Phyllotaxis/Phyllotaxy** _____

138. (1 point) **A.** B. C. D.

139. (1 point) **A. B. C. D.** E. F.

140. (1 point)

Solution: Used to shelter areas from wind OR prevent erosion OR as a windbreak

141. (1 point) _____ **Coppicing** _____

Station 18

142. (1 point) _____ **Carpinus caroliniana** _____

143. (1 point) **A.** B. C. D. **E.**

144. (1 point) _____ **1700-1900 (true value is 1780)** _____

145. (3 points)

Solution: Represents the force required (1 for force) to embed a steel ball (1 for specifically a steel ball or steel sphere) halfway (1 for mentioning that it is only half embedded into the wood) into a piece of wood

146. (2 points)

Solution: Yes, this tree is resistant to juglone or the effects of black walnut

147. (1 point) _____ **Ecotone** _____

148. (3 points)

Solution: Riparian zone (1 for anything with riparian), Yes (1) because of its shade tolerance or that it is a late seral species (1)

Station 19

149. (2 points)

Solution: Coppicing cuts trees down to the stump (1), pollarding removes only the upper branches (1)

150. (1 point) _____ **Leaf formation/production**

151. (2 points)

Solution: Shading of concrete, evapotranspiration, absorbing pollutants from the air (1 point each up to 2 points)

152. (1 point)

Solution: Shelterwood cutting retains more trees per acre and leaves trees to improve environmental conditions for the whole stand rather than just some parts of it like in seed tree cutting

153. (2 points)

Solution: 20%, both (shelterwood and seedtree, no credit for only putting one)

154. (1 point)

Solution: Regenerating trees with shallow roots, environments where windthrow is common, high water tables, shallow soils, spindly trees

155. (2 points)

Solution: Group selection - shade intolerant increases (decrease), individual tree selection - shade tolerant trees grow (increase)

156. (1 point) A. **B.** C. D.

157. (1 point)

Solution: Compartmentalization of Decay in Trees

Station 20

158. (1 point) _____ **Oregon ash** _____

159. (1 point) _____ **Black walnut** _____

160. (1 point) _____ **Red pine** _____

161. (1 point) _____ **Southern catalpa** _____

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162. (1 point) Pinus edulis
163. (1 point) Sorbus americana
164. (1 point) Juniperus scopulorum
165. (1 point) Betula populifolia