Division C: Invasive Species KEY

Eastside Invitation

Names:_____

School:_____

Team #:_____

ALL MULTIPLE-CHOICE ANSWERS MUST BE PLACED ON THE SCANTRON SHEET

Any answers not on the scantron sheet will NOT be scored.

Total: /126

Part 1: Species Knowledge: Answer the questions relating to each Invasive (#1-14). You have 90 seconds for each slide. Choose the best answer.

Species 1:

1. Scientific Name:
   a. *Dioscorea oppositifolia L.*
   b. *Carex kobomugi Ohwi*
   c. *Impatiens glandulifera*
   d. *Trapa natans*

2. Where is this species native to?
   a. Coastal regions of Western Europe
   b. Coastal regions of West Africa
   c. Coastal regions of South America
   d. Coastal regions of China, Japan, Korea, and Russia

3. What is the ecological concern for this species?
   a. Out competes native dune grasses which leads to erosion
   b. Out competes native sand grasses which leads to loss of food for native birds
   c. Crowds out natives and birds cannot nest
   d. None of the above

Species 2:

4. Scientific Name:
   a. *Dioscorea oppositifolia L.*
   b. *Carex kobomugi Ohwi*
   c. *Impatiens glandulifera*
   d. *Trapa natans*

5. When was this species introduced to the United States?
   a. 1700's
   b. 1800's
   c. 1900's
   d. 2000's

6. Where is this species native to?
   a. South America
   b. Europe
   c. Africa
   d. Asia

Species 3:

7. Common Name (all 4 together):
   a. African Carp
   b. Asian Carp
   c. Antarctica Carp
   d. Alabama carp

There are 4 different species currently of concern in Michigan, match the year each species was introduced to the US. Tie breaker #1 (questions 8-11 accuracy)

a. 1963 b. 1970 c. 1972 d. 1973

8. **Bighead carp C**
9. **Grass carp A**
10. **Silver carp D**
11. **Black carp B**

12. Which of the above species is known to leap when disturbed by a boat motor?
    a. Bighead
    b. Grass
    c. Silver
    d. Black

Species 4:

13. Scientific Name:
    a. *Procambarus clarkii*
    b. *Hemigrapsus sanguineus*
    c. *Orconectes rusticus*
    d. *Eriocheir sinensis*
    e. *Carcinus maenas*

14. What is the diet for this species?
    a. Plants only
    b. Fish only
    c. Amphibians only
    d. Fish and amphibians
    e. Fish, amphibians, and plants

Species 5:

15. Scientific Name:
    a. *Dioscorea oppositifolia L.*
    b. *Carex kobomugi Ohwi*
    c. *Impatiens glandulifera*
    d. *Celastrus orbiculatus*

16. How high can this vine climb?
    a. 10ft
    b. 20ft
    c. 60ft
    d. 100ft

17. Where is this invasive native to?
    a. England, France, Spain
    b. Russia, Germany, Belgium
    c. Russia, Pakistan, Mongolia
    d. Japan, Eastern China, Korea

Species 6:

18. Scientific Name:
    a. *Procambarus clarkia*
    b. *DIkerogammarus villosus*
    c. *Eriocheir sinensis*
    d. *Orconectes rusticus*

19. Where is this species native to?
    a. Ponto-Caspian basin of Eastern Europe
    b. North Sea region of Eastern Europe
    c. Mediterranean Sea basin of Eastern Europe
    d. Arabian Sea region of South-Western Europe

20. **How did this species get into the Great Lakes? Tie breaker #2**
    a. **Ballast water (BOB)**
    b. **No-ballast-on-board (NOBOB)**
    c. **Bait from fisherman**
    d. **A & B**
    e. **A & C**

Species 7:

21. Scientific Name:
    a. *Sus scrofa*
    b. *Pecari tajacu*
    c. *Tayassu pecari*
    d. *Catagonus wagneri*

22. An animal living in the wild but descended from domesticated individuals is considered:
    a. Human commensal
    b. Invasive
    c. Non-native
    d. Native
    e. Feral

Species 8:

23. Scientific Name:
    a. *Nymphoides peltata*
    b. *Marsilea quadrifolia*
    c. *Myriophyllum aquaticum*
    d. *Stratiotes aloides*

24. What ecological concerns does this plant raise?
    a. Crowds out natives
    b. Decreases biodiversity
    c. Alters water chemistry
    d. All of the above
    e. None of the above

25. How was this species introduced to the Great Lakes?
    a. Aquarium releases
    b. Water garden releases
    c. Ballast Water
    d. A & B
    e. A & C

Species 9:

26. Scientific Name:
    a. *Dioscorea oppositifolia L.*
    b. *Carex kobomugi Ohwi*
    c. *Impatiens glandulifera*
    d. *Celastrus orbiculatus*

27. Where was this organism introduced to the US?
    a. Southern East Coast States
    b. Southern Pacific Coast States
    c. Northern East Coast States
    d. Prairie States

28. **How does this species impact the ecosystem? TIE BREAKER #3**
    a. **Competes with natives and alters pollinator behavior**
    b. **Alters water flow increasing erosion and flooding**
    c. **Provides habitat for other invasive species**
    d. **A and B**
    e. **B and C**

Species 10:

29. Scientific Name:
    a. *Cygnus buccinator*
    b. *Cygnus columbianus*
    c. *Cygnus olor*
    d. *Cygnus bewickii*

30. Date of Michigan introduction?
    a. 1901
    b. 1910
    c. 1919
    d. 1929

31. How many pounds of plants per day can a single adult eat?
    a. 2
    b. 4
    c. 6
    d. 8
    e. 10

Species 11:

32. Scientific Name:
    a. *Cantareus aspersa*
    b. *Monacha cartusiana*
    c. *Lissachatina fulica*
    d. *Hygomia cintella*

33. What continent is this species native to?
    a. South America
    b. North America
    c. Europe
    d. Asia
    e. Australia

34. Has this species been detected in Michigan?
    a. Yes
    b. No

Species 12:

35. Which of the following is **NOT** suitable habitat for this invasive?
    a. Ditches
    b. Wetlands
    c. Pond/Lake banks
    d. Open dry fields

36. How is this species spread?
    a. Seeds
    b. Runners
    c. Cuttings
    d. A & B
    e. A & C

Species 13:

37. Scientific Name:
    a. *Dreissena polymorpha*
    b. *Rapana venosa*
    c. *Dreissena bugensis*
    d. *Limnoperna furtunei*

38. How large can the colonies of this species grow per meter?
    a. 1,000
    b. 30,000
    c. 50,000
    d. 80,000
    e. 120,000

Species 14:

39. Scientific Name:
    a. *Cantareus aspersa*
    b. *Monacha cartusiana*
    c. *Lissachatina fulica*
    d. *Hygomia cintella*

40. Where is this species native to?
    a. Mediterranean
    b. Asia
    c. Northern Europe
    d. India
    e. Australia

41. Has this species been detected in Michigan?
    a. Yes
    b. No

42. Method of US introduction?
    a. Ballast water
    b. Timber
    c. Plant material and/or soil
    d. None of the above

Part 2: Species ID

Identify the Common Name and Scientific Name for each species (A-O)

You have 30 seconds for each slide. Fill in provided Scantron.

43. Species A
    a. *Anoplophora glabripennis*
    b. *Tominicus piniperda*
    c. *Soloenopsis invicta*
    d. *Coptotermes formosanus*
    e. *Adelges piceae*

44. Species A
    a. Balsam woodly adelgid
    b. Chilli Thrips
    c. Red Imported Fire Ants
    d. European Spruce Bark Beetle
    e. Formosan Subterranean Termite

45. Species B
    a. European frog-bit
    b. Parrot feather
    c. Curly pondweed
    d. Eurasian watermilfoil
    e. Water Hyacinth

46. Species B
    a. *Hydrocharis morsus-ranae*
    b. *Eichhornia crassipes*
    c. *Potamogeton crispus*
    d. *Myriophyllum aquaticum*
    e. none of the above

47. Species C
    a. European frog-bit
    b. Parrot feather
    c. Curly pondweed
    d. Eurasian watermilfoil
    e. Water Hyacinth

48. Species C
    a. *Hydrocharis morsus-ranae*
    b. *Eichhornia crassipes*
    c. *Potamogeton crispus*
    d. *Myriophyllum aquaticum*
    e. none of the above

49. Species D
    a. Chili thrips
    b. Formosan Subterranean Termite
    c. Silverleaf whitefly
    d. Glassy-winged sharpshooter
    e. Mediterranean Fruit Fly

50. Species D
    a. *Scirtothrips dorsalis*
    b. *Ceratitis capitata*
    c. *Coptotermes formosanus*
    d. *Bemisia argentifolii*
    e. *Homalodisca vitripennis*

51. Species E
    a. *Maconellicoccus hirsutus*
    b. *Pectinophora gossypiella*
    c. *Heterodera glycines*
    d. *Lymnatria dispar*
    e. *Epiphyas postvittana*

52. Species E
    a. Light brown apple moth
    b. Pink Hibiscus mealybug
    c. Soybean Cyst Nematode
    d. European Gypsy Moth
    e. Pink Bollworm

53. Species F
    a. Asian Swamp Eel
    b. Sea Lamprey
    c. Northern Snakehead
    d. Asian Carps

54. Species F
    a. *Didemnum vexillum*
    b. *Petromyzon marinus*
    c. *Monopterus albus*
    d. *Channa argus*

55. Species G
    a. Asian Clam
    b. New Zealand Mud Snail
    c. Zebra Mussel
    d. Veined Rapa Whelk

56. Species G
    a. *Rapana venosa*
    b. *Dreissena polymorpha*
    c. *Potamopyrgus antipodarum*
    d. *Corbicula fluminea*

57. Species H
    a. *Didemnum vexillum*
    b. *Petromyzon marinus*
    c. *Monopterus albus*
    d. *Channa argus*

58. Species H
    a. Asian Swamp Eel
    b. Sea Lamprey
    c. Northern Snakehead
    d. Asian Carps

59. Species I
    a. *Procambarus clarkii*
    b. *Hemigrapsus sanguineus*
    c. *Orconectes rusticus*
    d. *Eriocheir sinensis*
    e. *Carcinus maenas*

60. Species I
    a. Asian shore crab
    b. European Green Crab
    c. Chinese mitten crab
    d. Red swamp crayfish
    e. Rusty crayfish

61. Species J
    a. *Imperata cylindrica*
    b. *Dipsacus fullonum*
    c. *Euohorbia esula*
    d. *Alliaria petiolata*
    e. *Cynoglossum officinale*

62. Species J
    a. Common Teasel
    b. Cogongrass
    c. Garlic Mustard
    d. Houndstongue
    e. Purple Start Thistle

63. Species K
    a. *Sorghum halepense*
    b. *Microstegium vimineum*
    c. *Imperata cylindrica*
    d. *Lonicera japonica*
    e. *Elaeagnus angustifolia*

64. Species K
    a. Japanese Honeysuckle
    b. Johnsongrass
    c. Japanese Stilt Grass
    d. Cogongrass
    e. Brazilian Peppertree

65. Species L
    a. *Sorghum halepense*
    b. *Microstegium vimineum*
    c. *Imperata cylindrica*
    d. *Lonicera japonica*
    e. *Elaeagnus angustifolia*

66. Species L
    a. Japanese Honeysuckle
    b. Johnsongrass
    c. Japanese Stilt Grass
    d. Cogongrass
    e. Brazilian Peppertree

67. Species M
    a. *Solanum viarum*
    b. *Linaria vulfaris*
    c. *Linaria dalmatica*
    d. *Lonicera japonica*
    e. *Striga asiatica*

68. Species M
    a. Yellow Toadflax
    b. Dalmatian Toadflax
    c. Yellow Star Thistle
    d. Witchweed
    e. Japanese Honeysuckle

69. Species N
    a. *Hydrocharis morsus-ranae*
    b. *Eichhornia crassipes*
    c. *Potamogeton crispus*
    d. *Myriophyllum aquaticum*
    e. *Myriophyllum spicatum*

70. Species N
    a. European frog-bit
    b. Parrot feather
    c. Curly pondweed
    d. Eurasian watermilfoil
    e. Water Hyacinth

71. Species O
    a. Melaleuca
    b. Giant Reed
    c. Alligatorweed
    d. Brazialian Waterweed
    e. Common Reed

72. Species O
    a. *Arundo donax*
    b. *Phragmites australis*
    c. *Melaleuca quinquenervia*
    d. *Alternanthera philoxeroides*
    e. *e. Egeria densa*

Part 3: Multiple choice questions. All answers must be placed on the Scantron sheet provided. You have the remaining 21 minutes to finish part 3.

73. Approximately how many invasive species are established in the US (USGS)?
    a. 3000
    b. 3500
    c. 6000
    d. 6500
    e. 7000

74. Approximately how much monetary damage do invasive species cause each year in the US?
    a. $137 million
    b. $137 billion
    c. $137 trillion
    d. none of the above

75. The 100th Meridian Initiative is designed to stop which specie(s) from spreading West in North America?
    a. Asian Carp
    b. Zebra Mussels
    c. Quagga Mussels
    d. A & B
    e. B & C

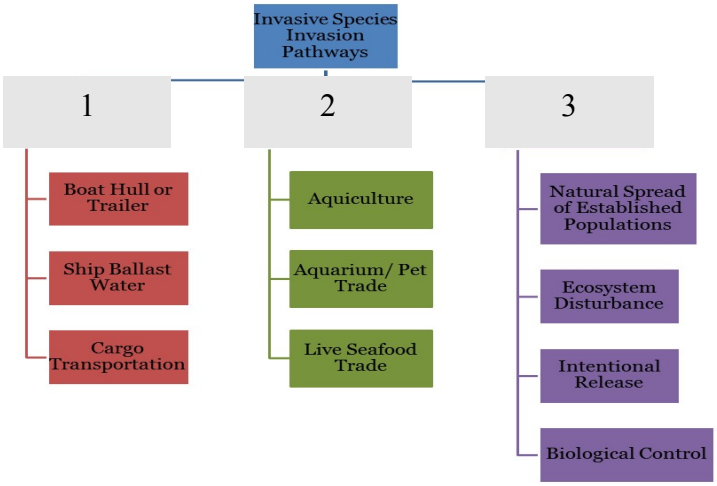
76. In order to stop aquatic hitchhikers, which slogan was adopted?
    a. "Clean, dry, drive"
    b. "Wash, drain, drive"
    c. "Wash, drain, dry"
    d. "Clean, drain, dry"

77. Invasive species differ from non-native species by:
    a. Out-competing for food/habitat
    b. Few predators
    c. Reproduce quickly
    d. Thrive in disturbed areas
    e. All of the above

78. About how many exotic species are released in the US every year?
    a. 100,000
    b. 50,000
    c. 25,000
    d. 10,000
    e. 1,000

79. The _____% rule states: that only ____% of introduced exotics will survive, and then only ___% of those will breed and become invasive.
    a. 1%
    b. 5%
    c. 10%
    d. 15%
    e. 20%

80. Approximately, what percentage of threatened or endangered species are at risk due to non-native/invasive species?
    a. 10%
    b. 20%
    c. 30%
    d. 40%
    e. 50%



For questions 81-83 use the diagram above and Match the correct term to the method of introduction

A. Living Industry
B. Miscellaneous
C. Transportation

81. 1 C
82. 2 A
83. 3 B

84. Besides the Emerald Ash Borer, what 2 pests are regulated in Michigan by firewood restrictions?
    a. Thousand Cankers Disease
    b. Giant Reed
    c. Asian Longhorned Beetle
    d. A & B
    e. A & C

85. The opening of _____, in 1959 allowed organisms to bypass Niagara Falls?
    a. St. Lawrence Seaway
    b. Soo Locks
    c. Weland Canal
    d. None of the above

Matching: For #86-91 use the following word bank.

A. Prevention
B. Chemical
C. Physical
D. Cultural
E. Biological
AB. Integrated Pest Management

86. Combinations of methods AB
87. Ecosystem management D
88. Natural predators E
89. Pesticides B
90. Manual/mechanical C
91. Prior to introduction A

92. The National Invasive Species Act (NISA) was enacted to target species from entering via:
    a. Cargo holds on ships
    b. Ballast water on ships
    c. Passengers on airplanes
    d. Commercial airplanes

93. NISA was intended to replace which previous Act?
    a. ISA
    b. ASPCA
    c. ESA
    d. NANPCA

94. What year was the NISA passed?
    a. 1996
    b. 1995
    c. 2006
    d. 2005

95. Which of the following is **not** a region that has been given special attention by NISA?
    a. Great Lakes
    b. Gulf of Mexico
    c. Chesapeake Bay
    d. San Francisco Bay
    e. all of the above are correct

96. NISA expanded the geographical scope to include areas outside the Great Lakes Region
    a. True
    b. False

97. Ships must exchange ballast water outside _____ US Exclusive Economic Zone
    a. 100 miles
    b. 200 miles
    c. 100 kilometers
    d. 200 kilometers

98. Why are invasive species so hard to control?
    a. No resources to utilize
    b. No prey to consume
    c. No predators
    d. They are easy to control, what are you talking about?

99. Why are invasive species so harmful to natives?
    a. out competes for resources
    b. disrupts millennia of co-evolution
    c. natives have no defense again invasive species
    d. all of the above are true
    e. A and B

100. When was Executive Order 13112 signed?
    a. 1997
    b. 1998
    c. 1999
    d. 2000

101. Executive Order 13112 established?
    a. National Invasive Species Association
    b. National Invasive Species Alliance
    c. National Invasive Species Coalition
    d. National Invasive Species Council

102. When was the Asian Carp Prevention and Control Act adopted?
    a. 2001
    b. 2009
    c. 2010
    d. 2011

103. The Asian Carp Prevention and Control Act adds the carp to the
    a. Lacey Act
    b. Plant Protection Act
    c. Water Resources Development Act
    d. National Invasive Species Act

104. The Clean Boating Act was established in?
    a. 1998
    b. 1999
    c. 2007
    d. 2008
    e. 2009

105. What agency is in charge of enforcing the Clean Boating Act?
    a. DNR
    b. EPA
    c. US Fish and Wildlife Service
    d. None of the above

106. The National Defense Authorization Act (NDAA) of 2008 targeted what organism?
    a. Asian Carp
    b. Sea Lamprey
    c. Emerald Ash Borer
    d. Brown Tree Snake

107. The NDAA of 2008 prevents the introduction of the above species (#43) into which State?
    a. Michigan
    b. Mississippi
    c. Alaska
    d. Hawaii
    e. Puerto Rico

108. The Water Resources Development Act was enacted in?
    a. 2006
    b. 2007
    c. 2008
    d. 2009

109. The Water Resources Development Act is enforced by which agency?
    a. EPA
    b. DNR
    c. US Fish and Wildlife Service
    d. US Navy
    e. US Army

110. The Water Resources Development Act targets which species?
    a. Sea Lamprey
    b. Asian Carp
    c. Zebra Mussels
    d. Northern Snakehead

111. Great Lakes Fish and Wildlife Restoration Act (amended version) was enacted in?
   a. 2006
   b. 2007
   c. 2008
   d. 2009

112. Great Lakes Fish and Wildlife Restoration Act is enforced by which agency?
   a. EPA
   b. DNR
   c. US Fish and Wildlife Service
   d. US Navy
   e. US Army

113. Great Lakes Fish and Wildlife Restoration Act targets which species?
   a. Sea Lamprey
   b. Asian Carp
   c. Zebra Mussels
   d. Northern Snakehead

114. The Salt Cedar and Russian Olive Control Demonstration Act was enacted in?
   a. 2006
   b. 2007
   c. 2008
   d. 2009

115. The Public Lands Corps Healthy Forests Restoration Act was enacted in?
   a. 2004
   b. 2005
   c. 2006
   d. 2007
   e. 2008

116. National Plan for Control and Management of Sudden Oak Death was enacted in?
   a. 2004
   b. 2005
   c. 2006
   d. 2007
   e. 2008

117. Which agency enforces the National Plan for Control and Management of Sudden Oak Death?
   a. EPA
   b. DNR
   c. US Fish and Wildlife Service
   d. US Dept. of Agriculture
   e. US Army

118. The Noxious Weed Control and Eradication Act was enacted in?
   a. 2004
   b. 2005
   c. 2006
   d. 2007
   e. 2008

119. Which agency is responsible for the Noxious Weed Control and Eradication Act?
   a. EPA
   b. DNR
   c. US Fish and Wildlife Service
   d. US Dept. of Agriculture
   e. US Army

120. The Nutria Eradication and Control Act was enacted in?
   a. 2004
   b. 2005
   c. 2006
   d. 2007
   e. none of the above

121. Which States are targeted by Nutria Eradication and Control Act?
   a. Louisiana
   b. Mississippi
   c. Maryland
   d. A & B
   e. A & C

122. The Lacey Act was enacted in?
   a. 1900
   b. 1901
   c. 1990
   d. 1991

123. The Lacey Act was amended in?
   a. 1997
   b. 1998
   c. 1999
   d. 2000

124. The Lacey Act inhibits the _____ of certain species?
   a. Intentional introduction
   b. Trade
   c. Export
   d. A & B
   e. A & C

125. Wild Bird Conservation Act was enacted in?
   a. 1990
   b. 1991
   c. 1992
   d. 1993

126. The Wild Bird Conservation Act regulates the import of _____.
   a. Native wild birds
   b. Protected wild bird species
   c. Foreign wild birds
   d. None of the above