THE **OUTSIDE** IS IN US ALL.

Solving Montana's Moose Mysteries

Assessment form for September/ October 2019 "Solving Montana's Moose Mysteries"

1. Who is the author of the article?
   - ❏ Nick DeCesare
   - ❏ Tom Dickson
   - ❏ Jesse Newby
   - ❏ Ryan Rauscher

2. What evidence best supports that Nick DeCesare is qualified to study moose populations in Montana?
   - ❏ He thinks moose are cool
   - ❏ He has a doctorate in wildlife biology from the University of Montana
   - ❏ He is well adapted to working in cold conditions
   - ❏ There is no evidence to support that he is qualified to study moose in Montana

3. About how many moose are harvested by hunters every year in Montana?
   - ❏ The number is not listed in the article
   - ❏ About 25,000
   - ❏ About 4,000
   - ❏ About 300

4. Where is one of Montana's largest moose populations?
   - ❏ The Big Hole valley
   - ❏ Eastern Montana
   - ❏ Northeastern Minnesota
   - ❏ The article does not mention moose populations

5. What events occurred that resulted in moose being studied in Montana starting in the 1990s? (choose the best answer)
   - ❏ Hunter success rates dropped and there was an increase in hot, dry weather
   - ❏ Tourists shops were selling a lot of moose-related goods
   - ❏ Everyone loves moose
   - ❏ Northeastern Montana moose numbers were climbing
6. According to the article, what factors needed to be studied more closely in order to better understand declining moose numbers? (select all that apply)
   - ❏ An increase in carnivore numbers
   - ❏ A decline in logging
   - ❏ Potential parasite infections
   - ❏ Rapid increase in poaching
7. What data is collected from each individual moose in order to better understand the factors affecting their populations? (select all that apply)
   - ❏ Meat density
   - ❏ Fat content
   - ❏ Age (tooth wear)
   - ❏ Pregnancy rates
   - ❏ Hide thickness
   - ❏ Vitals
   - ❏ Tick numbers
   - ❏ Fecal pellets
   - ❏ Calf survival rates over the first year
8. According to Jesse Newby, what three factors are calves the most vulnerable to in the first year of their life?
   - ❏ Predators, hunters and poaching
   - ❏ Disease, malnutrition and predators
   - ❏ Disease, hunters and malnutrition
   - ❏ Poaching, disease and predators

9. What groups or agencies are aiding FWP in its moose research? (select all that apply)
    - ❏ Hunters
    - ❏ Safari Club International
    - ❏ Poachers
    - ❏ Local landowners
    - ❏ Wildlife agencies in Canada
    - ❏ Tourists

10. According to the chart, "Variables: Factors Affecting Moose Populations," what factors influence adult female survival? (select all that apply)
    - ❏ Hunter harvest
    - ❏ Predation
    - ❏ Forage & habitat
    - ❏ Parasites & disease
    - ❏ Heat stress & snow

11. According to the chart, "Variables: Factors Affecting Moose Populations," what factors influence calf survival? (select all that apply)
    - ❏ Hunter harvest
    - ❏ Predation
    - ❏ Forage & habitat
    - ❏ Parasites & disease
    - ❏ Heat stress & snow

12. According to the pie chart titled, "What kills adult cow moose?" What factor is the leading cause for female moose deaths?
    - ❏ Predation
    - ❏ Human related
    - ❏ Health related
    - ❏ Accident

13. What new method do FWP scientists believe could be the most effective way to monitor moose populations across Montana?
   - ❏ Aerial surveys
   - ❏ Tracking moose on foot
   - ❏ Hunter success rates
   - ❏ Radio collars
   - ❏ Phone surveys asking moose, deer and elk hunters if and where they had seen moose the previous season

14. According to the sidebar, "Other moose study findings," what parasite seems to be killing the most moose in Montana?
   - ❏ Winter ticks
   - ❏ Brain worms
   - ❏ Arterial worms
   - ❏ There are no parasites linked to moose mortality

15. According to the section, "Answers Down the Road," what goals do Montana Fish, Wildlife & Parks biologists have for the next three years of moose research in Montana? (select all that apply)
   - ❏ Prevent poaching
   - ❏ Study the genetics of Montana Shiras moose to determine if they are a different subspecies
   - ❏ Work with wildlife managers to determine what other information needs to be studied to better understand moose population trends
   - ❏ Continue monitoring collared moose and their young
   - ❏ Learn how many trophy moose hunters harvest each year

Get your boots on the ground and dig deeper!

Answer the following questions by doing additional research and writing about your findings.

1. Do your research: Can you find any connections to other wild animals that have faced challenging health-related issues in Montana? Consider pneumonia in bighorn sheep, or deer affected by chronic wasting disease. What are the similarities and differences in the challenges that Montana Fish, Wildlife & Parks (FWP) faces in addressing these health issues in wildlife populations?

2. Research and write about it (Informative) Montana Fish, Wildlife & Parks (FWP) has dedicated ten years of research in three separate regions of Montana to better understand moose population growth and decline. Can you research to find other states that have conducted similar studies on moose and what their findings were? If so, are there any similarities in the findings? Support your findings with at least two pieces of textual evidence from your research and this article.

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