

1. Paragraph 1 supports which of the following inferences about mammal evolution
 - A. Bats and seals most probably originated in New Zealand and then migrated to other parts of the world.
 - B. Most mammal species were already present in Gondwanaland before it broke up, between 80 to 85 million years ago.
 - C. No mammals that evolved after New Zealand separated from Gondwanaland were able to migrate to New Zealand.
 - D. No mammals evolved from the animals that originally inhabited New Zealand.

2. The word "striking" in the passage is closest in meaning to
 - A. abundant
 - B. attention getting
 - C. familiar
 - D. important

3. According to paragraph 2, moa
 - A. had large wings
 - B. hatched many eggs at one time
 - C. had no mammals that preyed on them
 - D. were ordinarily small in size and light in weight

The Extinction of Moa

1. Between 80 and 85 million years ago, Gondwanaland, a giant continent made up of what today is Africa, Antarctica, Australia, and South America, broke up, thus causing what is now New Zealand to become separated from the larger landmass. After the separation, any creature unable to cross a considerable distance of ocean could not migrate to New Zealand. Snakes and most mammals evolved after the separation. Thus there are no New Zealand snakes, and bats, which flew there, and seals, which swam there, were the only mammals on New Zealand when Polynesian settlers (the Maori) arrived there about a thousand years ago.

2. When the Maori arrived in New Zealand, they encountered birds that had been evolving for 80 million years without the presence of mammalian predators. [A] The most striking of these animals must have been moa. [B] Now extinct, moa were gigantic wingless birds that stood as much as 10 feet (3 meters) tall and weighed as much as 550 pounds (250 kilograms). [C] They are known from a diverse array of remains including eggshells, eggs, a few mummified carcasses, vast numbers of bones, and some older fossilized bone. [D] The species of moa that are currently recognized occupied ecological niches customarily filled elsewhere by large mammalian browsing herbivores. They may have had relatively low reproductive rates; apparently, they usually laid only one egg at a time.

<p>4. Why does the author provide the information that “Climatic conditions in New Zealand appear to have been relatively stable over the period during which moa became extinct”?</p> <p>A. To eliminate what might seem to be a plausible explanation of the extinction of moa</p> <p>B. To explain why some moa species may still have existed at the time of Captain Cook’s first visit to New Zealand</p> <p>C. To explain why, in the late 1700s, moa most likely lived in remote areas of New Zealand</p> <p>D. To suggest that climate conditions in New Zealand varied widely when moa were plentiful</p> <p>5. According to paragraph 4, why is forest burning considered only a partial explanation for the disappearance of moa?</p> <p>A. Forest burning was far less intense on New Zealand’s South Island, where the majority of moa habitats were located.</p> <p>B. Moa populations had already been significantly reduced before most of the forest burning started.</p> <p>C. Moa became extinct long after the Maori had stopped the practice of forest burning.</p> <p>D. Moa gradually adapted to changes that resulted from forest burning.</p> <p>6. Why does the author say that “At one excavated Maori site, moa remains filled six railway cars.”?</p> <p>A. To indicate how large the moa population was before it was hunted</p> <p>B. To indicate that scientists were very interested in learning details about moa</p> <p>C. To illustrate the intensity with which the Maori hunted moa</p> <p>D. To suggest that moa hunting was largely limited to New Zealand’s South Island</p>	<p>3. It seems possible that when Captain James Cook first visited New Zealand in 1769, moa (or at least one of the moa species) may have still survived in the remote areas in the western part of New Zealand’s South Island. If so, these individuals would have been the last of their kind. Climatic conditions in New Zealand appear to have been relatively stable over the period during which moa became extinct. Different factors could have worked in concert to account for their abrupt disappearance.</p> <p>4. Vegetation was considerably altered by the Maori occupation of New Zealand, a change not easily explained by climate variation or other possible factors. Forest and shrubland burning appears to have reduced the prime habitat of many moa species. However, the main forest burning started around 700 years ago, after what current archeological evidence indicated was the most intensive stage of moa hunting. While there appears to have been extensive burning on the east side of New Zealand’s South Island, large forest tracts remained in the most southern part of the island. Because major habitat destruction seems to have occurred after moa populations already were depleted, and because some habitat that could have sheltered moa populations remained, it would seem that other factors were also at work in the extinction of these birds.</p> <p>5. For South Island, human predation appears to have been a significant factor in the depletion of the population of moa. At one excavated Maori site, moa remains filled six railway cars. The density of Maori settlements and artifacts increased substantially at the time of the most intensive moa hunting (900 to 600 years ago). This period was followed by a time of decline in the Maori population and a societal transition to smaller, less numerous settlements. The apparent decline fits the pattern expected as a consequence of the Maori’s overexploitation of moa.</p>
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<p>7. According to paragraph 6, scientists may never know if diseases contributed to the extinction of moa because</p> <ul style="list-style-type: none"> A. previous research to establish the role of diseases in the extinction of animals did not yield any significant findings B. scientists have difficulty identifying past diseases from paleoecological and archaeological data C. moa's fossilized remains contain no DNA D. conducting such research is time-consuming and expensive <p>8. Which of the sentences below best expresses the essential information in the highlighted sentence in the passage? Incorrect choices change the meaning in important ways or leave out essential information.</p> <ul style="list-style-type: none"> A. The extinction of moa suggests the vulnerability of species to human-caused changes to the species' environment. B. Some species, such as moa, are vulnerable to changes in their environment. C. The environmental changes that moa experienced included modifications to plant and animal life and the introduction and elimination of certain animal species. D. The story of moa raises issues that are important for ecologists to consider. 	<p>6. Finally, the Maori introduced the Polynesian rat and the dog to New Zealand. The actions of these potential nest predators could have reduced moa populations without leaving much direct evidence. The Maori may have also inadvertently brought pests and disease organisms in fowls, which could have crossed over to eradicate moa populations. The possibility of analyzing ancient DNA to identify past diseases of extinct animals is being explored. However, evidence of such diseases is difficult to determine directly from paleoecological or archaeological remains. For these reasons, it is hard to determine the likelihood that introduced disease organisms were a cause of the decline of moa, but they are potentially significant.</p> <p>7. While the last of these possible causes remains speculative, definite clues exist for the action of the first two causes. The story of moa species and their demise raises ecological issues on the vulnerability of species to human-caused changes - including altered vegetative cover of the landscape, change in the physical environment, and modification of the flora and fauna of a region by eliminating some species and introducing others.</p>
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9. Look at the four squares [■] that indicate where the following sentence could be added to the passage.
Investigations of DNA recovered from these sources suggest that there were ten to fifteen moa species.
10. **Directions:** An introductory sentence for a brief summary of the passage is provided below. Complete the summary by selecting the THREE answer choices that express the most important ideas in the passage. Some sentences do not belong in the summary because they express ideas that are not presented in the passage or are minor ideas in the passage. **This question is worth 2 points.**

Moa were large, flightless birds of New Zealand that became extinct several centuries ago.

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Answer Choices

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| <p>A. Because New Zealand had no large mammals, moa had no mammalian predators and occupied the ecological niches that elsewhere were occupied by large mammalian herbivores.</p> <p>B. DNA analysis of moa remains revealed that the extinction of moa species occurred less than three centuries ago.</p> <p>C. Scientists claim that forest burning is the factor most responsible for the disappearance of moa.</p> | <p>D. Initially, moa had a high reproductive rate, but over time it significantly declined, largely due to changes in New Zealand's climatic pattern.</p> <p>E. The extinction of moa was primarily caused by the hunting and deforestation activities of the Maori, who arrived in New Zealand about one thousand years ago.</p> <p>F. The Maori introduced dogs, rats, and perhaps disease organisms, which may have contributed to the extinction of moa, but evidence is not available.</p> |
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1. Which of the sentences below best expresses the essential information in the highlighted sentence in the passage? Incorrect choices change the meaning in important ways or leave out essential information.
 - A. Climate change caused by human activity is the main reason for the increase in fires over the past 30 years.
 - B. While human activity is definitely considered a factor, foresters are still debating whether climate plays a role in the recent increase in fires.
 - C. For complicated reasons, over the past 30 years there has been an increase in the number of fires that take place during hot, dry summers.
 - D. Both climate change and human activities are responsible for the recent increase in forest fires, although the contributions of those factors are still not agreed on.

2. What can be inferred from paragraph 2 about forest-fire suppression before 1900?
 - A. It was more effective than afterward because there were fewer fires to suppress in most regions.
 - B. There was no official program of forest-fire suppression in the United States.
 - C. Forest-fire suppression was practiced more for the purpose of protecting homes than for protecting forests.
 - D. The Forest Service had rules to control forest fires, but the rules were ignored.

3. Why does the author include the quotation "Put out every forest fire by 10:00 A.M. on the morning after the day when it is first reported"?
 - A. To suggest that the Forest Service's goals were unrealistic and ultimately unattainable
 - B. To demonstrate how seriously the Forest Service took their responsibility of fire suppression
 - C. To support the idea that fire-suppression techniques are most effective early in the day
 - D. To provide an example of the new methods that resulted in successful firefighting after 1945

Forest Fire Suppression

1. Forest fires have recently increased in intensity and extent in some forest types throughout the western United States. This recent increase in fires resulted partly from climate change (the recent trend toward hot, dry summers) and partly from human activities, for complicated reasons that foresters came increasingly to understand about 30 years ago but whose relative importance is still debated. One factor is the direct effect of logging, which often turns a forest into something approximating a huge pile of kindling (wood for burning): the ground in a logged forest may remain covered with branches and treetops, left behind when the valuable trunks are carted away; a dense growth of new vegetation springs up, further increasing the forest's fuel loads; and the trees logged and removed are of course the biggest and most fire-resistant individuals, leaving behind smaller and more flammable trees.

2. Another factor is that the United States Forest Service in the first decade of the 1900s adopted the policy of fire suppression (attempting to put out forest fires) for the obvious reason that it did not want valuable timber to go up in smoke, or people's homes and lives to be threatened. The Forest Service's announced goal became "Put out every forest fire by 10:00 A.M. on the morning after the day when it is first reported." [A] Firefighters became much more successful at achieving that goal after 1945, thanks to improved firefighting technology. [B] For a few decades the amount of land burnt annually decreased by 80 percent. [C] That happy situation began to change in the 1980s, due to the increasing frequency of large forest fires that were essentially impossible to extinguish unless rain and low winds combined to help. [D] People began to realize that the United States federal government's fire-suppression policy was contributing to those big fires and that natural fires caused by lightning had previously played an important role in maintaining forest structure.

<p>4. According to paragraph 3, all of the following have been used to determine the frequency of forest fires under natural conditions in Montana’s ponderosa pine forests EXCEPT:</p> <ul style="list-style-type: none"> A. recent records of fire-suppression efforts in the region B. historical documents C. examination of tree rings on burned trees D. the dating of scars on remaining stumps of fire-damaged trees <p>5. In paragraph 3, what is the author’s purpose in describing the natural cycle of fires in ponderosa pine forests?</p> <ul style="list-style-type: none"> A. To emphasize the importance of replanting seedlings after a forest fire B. To argue for increasing the effectiveness of laws to suppress forest fires C. To describe how fire affects a typical ponderosa pine forest in the absence of human intervention D. To explain the long-lasting damage that once occurred in the ponderosa pine forests of Montana before fires were controlled <p>6. According to paragraph 4, why is the human preservation of Douglas fir sapling trees a threat to the ponderosa pine forest?</p> <ul style="list-style-type: none"> A. The presence of many sapling trees makes it more difficult for firefighters to reach the source of a forest fire. B. Douglas fir saplings are expensive to maintain, leaving little government money for forest-fire suppression. C. Saplings compete for space with the large and more valuable fire-resistant trees. D. Dense areas of tall sapling trees can spread fire to the crowns of larger, fire-resistant trees. 	<p>3. The natural role of fire varies with altitude, tree species, and forest type. To take Montana’s low-altitude ponderosa pine forest as an example, historical records, plus counts of annual tree rings and datable fire scars on tree stumps, demonstrated that a ponderosa pine forest experiences a lightning-lit fire about once a decade under natural conditions (i.e., before fire suppression began around 1910 and became effective after 1945). The mature ponderosa trees have bark two inches thick and are relatively resistant to fire, which instead burns out the understory - the lower layer - of fire-sensitive Douglas fir seedlings that have grown up since the previous fire. But after only a decade’s growth until the next fire, those young seedling plants are still too low for fire to spread from them into the crowns of the ponderosa pine trees. Hence the fire remains confined to the ground and understory. As a result, many natural ponderosa pine forests have a parklike appearance, with low fuel loads, big trees spaced apart, and a relatively clear understory.</p> <p>4. However, loggers concentrated on removing those big, old, valuable, fire-resistant ponderosa pines, while fire suppression for decades let the understory fill up with Douglas fir saplings that would in turn become valuable when full-grown. Tree densities increased from 30 to 200 trees per acre, the forest’s fuel load increased by a factor of 6, and the government repeatedly failed to appropriate money to thin out the saplings. When a fire finally does start in a sapling-choked forest, whether due to lightning or human carelessness or (regrettably often) intentional arson, the dense, tall saplings (young trees) may become a ladder that allows the fire to jump into the crowns of the trees. The outcome is sometimes an unstoppable inferno.</p>
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<p>7. What does paragraph 5 describe as a solution to the fires in Western forests?</p> <ul style="list-style-type: none"> A. The careful management of forests to reduce the buildup of fuel loads B. The preservation of a dense understory C. The occasional flooding of western forests to make them as wet as those in the East D. A return to the effective methods of fire suppression of the previous half century <p>8. According to paragraph 5, people in the United States would probably not support the described forest-management and restoration techniques because they</p> <ul style="list-style-type: none"> A. think that the use of small, controlled fires may be too dangerous B. do not want to spend money on the expensive process of managing forest understory C. distrust the Forest Service due to the harmful fire-suppression techniques of the past D. do not want politicians involved in forest management 	<p>5. Foresters now identify the biggest problem in managing Western forests as what to do with those increased fuel loads that built up during the previous half century of effective fire suppression. In the wetter eastern United States, dead trees rot away more quickly than in the drier West, where more dead trees persist like giant matchsticks. In an ideal world, the Forest Service would manage and restore the forests, thin them out, and remove the dense understory by cutting or by controlled small fires. But not politician or voter wants to spend what it would cost to do that.</p>
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9. Look at the four squares [■] that indicate where the following sentence could be added to the passage.
Such a reduction seemed to demonstrate that the program of fire suppression was having its desired effect.

Where would the sentence best fit?

10. Directions: An introductory sentence for a brief summary of the passage is provided below. Complete the summary by selecting the THREE answer choices that express the most important ideas in the passage. Some sentences do not belong in the summary because they express ideas that are not presented in the passage or are minor ideas in the passage. **This question is worth 2 points.**

For several reasons, forest fires have increased in number and intensity in the western United States.

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Answer Choices

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| <p>A. Fire suppression, which was initially thought to be beneficial, and logging are two human activities that have caused an increase in large forest fires.</p> <p>B. Because forest fires are dangerous to people's property and a waste of valuable resources, the Forest Service currently has a policy to suppress all fires within a day.</p> <p>C. The Forest Service has not yet discovered exactly why the climate of western United States causes some types of trees but not others to catch fire.</p> | <p>D. Logging is much less likely than other human activities to have effects that contribute to large forest fires.</p> <p>E. The biggest problem in Western forest management is the increased amount of fire fuel available in forests as a result of human activity.</p> <p>F. The United States government and the public are unwilling to cover the costs required to reduce the increased fuel loads in Western forests.</p> |
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