

Keystone Biology

Non-Native Species

Handscoring Anchor Set

White-tailed deer from North America were brought to the islands of New Zealand around the year 1900. This species of deer has survived in several regions in New Zealand.

Part A: Explain why the white-tailed deer population is considered a nonnative species in New Zealand.

Continued. Please refer to the previous page for task explanation.

Part B: Describe one possible effect that a nonnative species can have on a native ecosystem and explain why this effect might occur.

Non-Native Species Scoring Guide

3	<p>The response demonstrates a <i>thorough</i> understanding of how ecosystems change in response to natural and human disturbances (e.g., climate changes, introduction of nonnative species, pollution, fires) by</p> <ul style="list-style-type: none"> • explaining why the white- tailed deer population is considered a non-native species in New Zealand and • describing a possible effect that a non-native species can have on a native ecosystem and • explaining why this effect might occur. <p>The response is clear, complete, and correct.</p>
2	<p>The response demonstrates a <i>partial</i> understanding of how ecosystems change in response to natural and human disturbances (e.g., climate changes, introduction of nonnative species, pollution, fires) by fulfilling two of the three bullets listed in the 3-point response.</p> <p>The response may contain some work that is incomplete or unclear.</p>
1	<p>The response demonstrates a <i>minimal</i> understanding of how ecosystems change in response to natural and human disturbances (e.g., climate changes, introduction of nonnative species, pollution, fires) by fulfilling one of the three bullets listed in the 3-point response.</p> <p>The response may contain some work that is incomplete or unclear.</p>
0	<p>The response provides <i>insufficient</i> evidence to demonstrate any understanding of the concept being tested.</p>
Non-scorables	<p>B – No response written or refusal to respond. F – Foreign language K – Off task U - Unreadable</p>

Note: No deductions should be taken for misspelled words or grammatical errors.

Responses that will receive credit:

Part A (1 point):

- The white-tailed deer is native to North America and was brought to New Zealand.
- The white-tailed deer did not evolve from ancestors in New Zealand.
- The white-tailed deer did not live in New Zealand before the humans brought them to the island.

Part B (2 points):

Possible effects:

- A decrease in the number of native plants in the areas where the nonnative species is present.
 - Explanation: The nonnative species becomes a consumer of some of the native species of plants.
- Limited food available for native species.
 - Explanation: The nonnative species becomes a consumer of some of the native species of plants or native organisms.
- The nonnative species migrates to another area in search of food or start consuming a different plant species.
 - Explanation: The nonnative species consumes native plant species until there is not enough food to sustain their population.
- Increase in the population of the nonnative species if the conditions for survival remain stable.
 - Explanation: The nonnative species move into the area and have enough food and water to sustain their population and reproduce.
- Native species may move into a different area or die off.
 - Explanation: Nonnative species may occupy the habitat of native species and/or consume their food resources.

Other effects students may describe and explain the effects:

- Nonnative species can increase the exotic diseases brought into the ecosystem.
- Nonnative species could become pests in the ecosystem.
- Nonnative species can grow faster and withstand diseases better than natives.
- Nonnative species can cause predatory animal populations to increase due to greater numbers of available prey.

White-tailed deer from North America were brought to the islands of New Zealand around the year 1900. This species of deer has survived in several regions in New Zealand.

Part A: Explain why the white-tailed deer population is considered a nonnative species in New Zealand.

The white-tailed deer is nonnative to New Zealand because it originated in North America. It was then transported by ship to New Zealand. They weren't born there but they now reside there because we took them there.

216 / 1000

Part B: Describe one possible effect that a nonnative species can have on a native ecosystem and explain why this effect might occur.

It could have a bad effect on New Zealand for many reasons. One is because it may eat foods that native animals eat thus taking the native animal's food source and depleting that certain population. Another is that maybe they have a disease or something that the native animals aren't used to that may kill the native species off or at least endanger them.

356 / 1000

A-1 Score Point 3

This response demonstrates a thorough understanding of how ecosystems change in response to natural and human disturbances (e.g., climate changes, introduction of nonnative species, pollution, fires) by completing all tasks presented in the items. The student explains that the white-tailed deer are considered a non-native species because they “originated in North America and were transported...to New Zealand.” The description one possible effect that the non-native species can have on a native ecosystem (*depleting a certain population of native animals or kill/endangering the native species*) is correct. The student continues to explain why this effect might occur because nonnative animals eat the native's food source or may introduce a disease that the native population is susceptible to. The response is complete clear and correct.

White-tailed deer from North America were brought to the islands of New Zealand around the year 1900. This species of deer has survived in several regions in New Zealand.

Part A: Explain why the white-tailed deer population is considered a nonnative species in New Zealand.

The white tailed deer is considered a nonnative species in New Zealand because they were not originally there, but brought in from someplace else.

Continued. Please refer to the previous page for task explanation.

Part B: Describe one possible effect that a nonnative species can have on a native ecosystem and explain why this effect might occur.

A nonnative species can have numerous effects on a native ecosystem. A major effect on the ecosystem would be if there were no native predators of the nonnative species. This could cause them to overpopulate, which would lead to a lack of food source for the nonnative species, and possibly native species as well.

A-2 Score Point 3

This response demonstrates a thorough understanding of how ecosystems change in response to natural and human disturbances (e.g., climate changes, introduction of nonnative species, pollution, fires) by completing all tasks presented in the items. The student explains that the white-tailed deer is considered nonnative species “because they were not originally there, but brought in from someplace else.” Additionally, the student describes that a nonnative species “would lead to a lack of food source for the...native species.” They explain that this effect may occur because “if there were no native predators of the nonnative species, This could cause them to overpopulate.” This response creates a clear connection between the effect the nonnative species would have on a native ecosystem and explains why the effect might occur. The response is clear, complete and correct.

White-tailed deer from North America were brought to the islands of New Zealand around the year 1900. This species of deer has survived in several regions in New Zealand.

Part A: Explain why the white-tailed deer population is considered a nonnative species in New Zealand.

The white-tailed deer is considered a nonnative species because it is not naturally found in New Zealand. Because the white-tailed deer were not found in New Zealand before they were brought there from North America they are not a native species.

Continued. Please refer to the previous page for task explanation.

Part B: Describe one possible effect that a nonnative species can have on a native ecosystem and explain why this effect might occur.

One effect a nonnative species could have on a native ecosystem is the extinction of a native species or a native plant. The new species could be a predator to a native species. If this was the case, the nonnative species could eliminate a native species, causing the entire ecosystem to change.

A-3 Score Point 3

This response demonstrates a thorough understanding of how ecosystems change in response to natural and human disturbances (e.g., climate changes, introduction of nonnative species, pollution, fires) by completing all tasks presented in the items. The student provides a clear explanation why the white-tailed deer population is considered a nonnative species in New Zealand (*it is not naturally found in New Zealand and they were brought there from North America*). The effect that a nonnative species can have on a native ecosystem (*the extinction of a native species or a native plant*) is clearly stated. The explanation (*the new species could be a predator to a native species...the nonnative species could eliminate a native species*) clearly connects to the effect presented. This response is clear complete and correct.

White-tailed deer from North America were brought to the islands of New Zealand around the year 1900. This species of deer has survived in several regions in New Zealand.

Part A: Explain why the white-tailed deer population is considered a nonnative species in New Zealand.

White-tailed deer were brought from
North America. They weren't originally
found in New Zealand, even if they can live
there.

Continued. Please refer to the previous page for task explanation.

Part B: Describe one possible effect that a nonnative species can have on a native ecosystem and explain why this effect might occur.

It might cause a shift in the food chain. This could occur if the new species eats a certain organism, and causes its numbers to reduce.

A-4 Score Point 3

This response demonstrates a thorough understanding of how ecosystems change in response to natural and human disturbances (e.g., climate changes, introduction of nonnative species, pollution, fires) by completing all tasks presented in the items. The student explains that “white-tailed deer were brought from North America. They weren’t originally found in New Zealand.” The student also describes that a nonnative species “might cause a shift in the food chain” which is an acceptable effect on the native ecosystem. This effect “could occur if the new species eats a certain organism and cause its number to reduce.” The description of the effect and the explanation why this effect might occur are clear enough for credit.

White-tailed deer from North America were brought to the islands of New Zealand around the year 1900. This species of deer has survived in several regions in New Zealand.

Part A: Explain why the white-tailed deer population is considered a nonnative species in New Zealand.

because they did not originally evolve their.

45 / 1000

Part B: Describe one possible effect that a nonnative species can have on a native ecosystem and explain why this effect might occur.

they can start eating certain plants and nuts leaving less for the rest of the ecosystem.

89 / 1000

A-5 Score Point 2

The response demonstrates a partial understanding of how ecosystems change in response to natural and human disturbances (e.g., climate changes, introduction of nonnative species, pollution, fires) by completing two of the tasks presented in the item. The student provides an acceptable explanation why the white-tailed deer population is considered a nonnative species in New Zealand (*they did not originally evolve their*). The description of the effect a nonnative species could have on the native ecosystem and explanation why the effect might occur (*they can start eating certain plant and nuts leaving less for the rest of the ecosystem*) is not fully developed enough for full credit. This response is incomplete and receives partial credit.

White-tailed deer from North America were brought to the islands of New Zealand around the year 1900. This species of deer has survived in several regions in New Zealand.

Part A: Explain why the white-tailed deer population is considered a nonnative species in New Zealand.

the white-tailed deer population is considered a nonnative species because they were brought from a different place that was not their original land.

151 / 1000

Part B: Describe one possible effect that a nonnative species can have on a native ecosystem and explain why this effect might occur.

one effect is that they may affect other animals in the native land they could steal their food or they could bring harmful diseases.

134 / 1000

A-6 Score Point 2

The response demonstrates a partial understanding of how ecosystems change in response to natural and human disturbances (e.g., climate changes, introduction of nonnative species, pollution, fires) by completing two of the tasks presented in the item. The response correctly explains why the white-tailed deer are considered a nonnative species in New Zealand “because they were brought from a different place...” The additional part of the response (*that is not their original land*) is unclear, but does not detract from the correct response. The student explains that the nonnative species “could steal their [other animals] food or they could bring harmful diseases.” The student does not clearly connect the effect that a nonnative species can have on a native population with the explanation why this would occur. This response is incomplete and receives partial credit.

White-tailed deer from North America were brought to the islands of New Zealand around the year 1900. This species of deer has survived in several regions in New Zealand.

Part A: Explain why the white-tailed deer population is considered a nonnative species in New Zealand.

It is nonnative in New Zealand because even though all of the white-tailed deer that live in New Zealand today were born in New Zealand the first generation of white-tailed deer in New Zealand were from North America.

217 / 1000

Part B: Describe one possible effect that a nonnative species can have on a native ecosystem and explain why this effect might occur.

The nonnative species can have struggles adapting to a native ecosystem and the species could ruin the ecosystem in an attempted to make the ecosystem something that they could live in. This effect might occur because the species isnt used to the new ecosystem.

260 / 1000

A-7 Score Point 1

The response demonstrates a minimal understanding of how ecosystems change in response to natural and human disturbances (e.g., climate changes, introduction of nonnative species, pollution, fires) by completing one of the tasks in the item. The student explains that since “the first generation of white-tailed deer in New Zealand were from North America,” they would be considered a nonnative species in New Zealand. The idea that “the [new] species could ruin the ecosystem” is too general to receive credit for an effect on the ecosystem. The additional part of the response attempts to explain the white-tailed deer will have to adapt to the new ecosystem [causing the negative effect] which is not acceptable. This response contains responses that are incomplete and receives minimal credit.

White-tailed deer from North America were brought to the islands of New Zealand around the year 1900. This species of deer has survived in several regions in New Zealand.

Part A: Explain why the white-tailed deer population is considered a nonnative species in New Zealand.

Nonnative means it was not original from an area. The white-tailed deer were brought there, that is why they are nonnative to New Zealand

138 / 1000

Part B: Describe one possible effect that a nonnative species can have on a native ecosystem and explain why this effect might occur.

The nonnative species may reproduce with the native species because all things reproduce

88 / 1000

A-8 Score Point 1

The response demonstrates a minimal understanding of how ecosystems change in response to natural and human disturbances (e.g., climate changes, introduction of nonnative species, pollution, fires) by completing one of the tasks in the item. The student states that “Nonnative means it was not original from an area. The white-tailed deer were brought there...” which is a complete explanation why the white-tailed deer population is considered a nonnative species. The description of the effect that a nonnative species can have on a native ecosystem (*nonnative species may reproduce with the native species*) and the attempted explanation why this would occur (*all things reproduce*) are unacceptable. This response receives partial credit for the explanation provided in Part A.

White-tailed deer from North America were brought to the islands of New Zealand around the year 1900. This species of deer has survived in several regions in New Zealand.

Part A: Explain why the white-tailed deer population is considered a nonnative species in New Zealand.

because the deer were not originated from their they were brought to that area.

79 / 1000

Part B: Describe one possible effect that a nonnative species can have on a native ecosystem and explain why this effect might occur.

they dont count on it for like survival.

40 / 1000

A-9 Score Point 1

The response demonstrates a minimal understanding of how ecosystems change in response to natural and human disturbances (e.g., climate changes, introduction of nonnative species, pollution, fires) by completing one of the tasks in the item. The student correctly explains why the white-tailed deer population is considered nonnative in New Zealand (*because the deer were not originated from their they were brought to that area*). The response provided to describe the effect that a nonnative species can have on a native ecosystem and explain why this effect might occur is incomplete and unclear. There is no additional credit for the answer. This response receives minimal credit.

White-tailed deer from North America were brought to the islands of New Zealand around the year 1900. This species of deer has survived in several regions in New Zealand.

Part A: Explain why the white-tailed deer population is considered a nonnative species in New Zealand.

The white-tailed deer is a big population
because New Zealand is an overpopulated country
with a lot of animals.

Continued. Please refer to the previous page for task explanation.

Part B: Describe one possible effect that a nonnative species can have on a native ecosystem and explain why this effect might occur.

because it does not belong in the
ecosystem.

A-10 Score Point 0

This response demonstrates an insufficient understanding of how ecosystems change in response to natural and human disturbances (e.g., climate changes, introduction of nonnative species, pollution, fires) by completing none of the tasks in the item. The student's response in Part A does not explain why the white-tailed deer is considered nonnative in New Zealand. Additionally, in Part B the response is unclear because the student explains why an effect might occur without describing the effect. Without additional explanation, the response is unclear and does not demonstrate enough understanding for credit.

Keystone Biology

Non-Native Species

Handscoring Training Set 1

White-tailed deer from North America were brought to the islands of New Zealand around the year 1900. This species of deer has survived in several regions in New Zealand.

Part A: Explain why the white-tailed deer population is considered a nonnative species in New Zealand.

They were brought from North America.

Continued. Please refer to the previous page for task explanation.

Part B: Describe one possible effect that a nonnative species can have on a native ecosystem and explain why this effect might occur.

It can eat a lot of food and resources. Organisms
need nourishment.

White-tailed deer from North America were brought to the islands of New Zealand around the year 1900. This species of deer has survived in several regions in New Zealand.

Part A: Explain why the white-tailed deer population is considered a nonnative species in New Zealand.

Because they weren't originally
from New Zealand they
originally were from North
America.

Continued. Please refer to the previous page for task explanation.

Part B: Describe one possible effect that a nonnative species can have on a native ecosystem and explain why this effect might occur.

They could be interfering
with another ecosystem
because they weren't there
first.

White-tailed deer from North America were brought to the islands of New Zealand around the year 1900. This species of deer has survived in several regions in New Zealand.

Part A: Explain why the white-tailed deer population is considered a nonnative species in New Zealand.

The reason white-tailed deer population is considered a nonnative species in New Zealand is because the deer was originally from North America and brought over to the islands of New Zealand

Continued. Please refer to the previous page for task explanation.

Part B: Describe one possible effect that a nonnative species can have on a native ecosystem and explain why this effect might occur.

Overpopulation could occur
if a nonnative species was
brought into a native ecosystem

White-tailed deer from North America were brought to the islands of New Zealand around the year 1900. This species of deer has survived in several regions in New Zealand.

Part A: Explain why the white-tailed deer population is considered a nonnative species in New Zealand.

It is considered non native because it was transferred to that region and not naturally born there.

99 / 1000

Part B: Describe one possible effect that a nonnative species can have on a native ecosystem and explain why this effect might occur.

It could change the whole ecosystem because there might not be enough vegetation for the deer and the other animals that live there

128 / 1000

White-tailed deer from North America were brought to the islands of New Zealand around the year 1900. This species of deer has survived in several regions in New Zealand.

Part A: Explain why the white-tailed deer population is considered a nonnative species in New Zealand.

White-tailed deer are nonnative species in New Zealand. They are nonnative because they were not originally found in New Zealand. They were brought over from North America.

Continued. Please refer to the previous page for task explanation.

Part B: Describe one possible effect that a nonnative species can have on a native ecosystem and explain why this effect might occur.

one possible effect a nonnative species
may have is. they may not adapt to the
environment they were taken too.

White-tailed deer from North America were brought to the islands of New Zealand around the year 1900. This species of deer has survived in several regions in New Zealand.

Part A: Explain why the white-tailed deer population is considered a nonnative species in New Zealand.

White-tailed deer are non-native to New Zealand because they were not originally on the island; they were native to another place and then they were introduced to the island by people who wanted to see white-tail deer there, a native species of North America.

256 / 1000

Part B: Describe one possible effect that a nonnative species can have on a native ecosystem and explain why this effect might occur.

The non-native species could be making disastrous changes in the food web and it may be suited too well for the environment like having no natural predators and producing extremely fast. It also could be eating all the food that the native species normally eat; this would cause a major problem for the indigenous wildlife of the region of New Zealand...

351 / 1000

White-tailed deer from North America were brought to the islands of New Zealand around the year 1900. This species of deer has survived in several regions in New Zealand.

Part A: Explain why the white-tailed deer population is considered a nonnative species in New Zealand.

White-tailed deer are considered nonnative in New Zealand because they weren't originally there. They were moved there from North America and they acquired and adapted to the living conditions there and survived.

Continued. Please refer to the previous page for task explanation.

Part B: Describe one possible effect that a nonnative species can have on a native ecosystem and explain why this effect might occur.

There can be a decrease in other organisms due to the nonnative species. The new species could eat another species. For example, a deer could eat a plant population and make it scarcer to find. Other animals could have also eaten that kind of plant, and with food low, population will drop.

White-tailed deer from North America were brought to the islands of New Zealand around the year 1900. This species of deer has survived in several regions in New Zealand.

Part A: Explain why the white-tailed deer population is considered a nonnative species in New Zealand.

Because they were brought to New Zealand from North America

59 / 1000

Part B: Describe one possible effect that a nonnative species can have on a native ecosystem and explain why this effect might occur.

It can reproduce mutations

26 / 1000

White-tailed deer from North America were brought to the islands of New Zealand around the year 1900. This species of deer has survived in several regions in New Zealand.

Part A: Explain why the white-tailed deer population is considered a nonnative species in New Zealand.

because there is already deer
in america and probably some in
New Zealand, so they just don't
consider them nonnative

Continued. Please refer to the previous page for task explanation.

Part B: Describe one possible effect that a nonnative species can have on a native ecosystem and explain why this effect might occur.

It would probably mate with the
native specie and have baby's
to mak a different species

White-tailed deer from North America were brought to the islands of New Zealand around the year 1900. This species of deer has survived in several regions in New Zealand.

Part A: Explain why the white-tailed deer population is considered a nonnative species in New Zealand.

A species "native" to a place originated in that place. White-tailed deer did not originate in New Zealand; they were brought there from North America, so they are nonnative -- not native -- to New Zealand.

Continued. Please refer to the previous page for task explanation.

Part B: Describe one possible effect that a nonnative species can have on a native ecosystem and explain why this effect might occur.

The introduction of a nonnative species might lower the population of a native species, for many reasons. One reason is that the new species might be a new competitor, that needs the same resources as others. For example, introducing a deer that feeds on grass, also fed on by cows, may cause the deer to dominate this resource, depleting the cow's supply and killing the cows from starvation. Also, the new species might be a predator. For example, introducing a wolf, which is a predator to a native species -- for instance, sheep -- will prompt the wolf to kill the sheep. The environment might not, overall, support a native and nonnative species.

Keystone Biology: Non-Native Species; Training Set 1

Subject: **Biology**

Item: **Non-Native Species**

Grade HS

Name _____

Number	Score	Notes
T1-1		
T1-2		
T1-3		
T1-4		
T1-5		
T1-6		
T1-7		
T1-8		
T1-9		
T1-10		

Keystone Biology

Non-Native Species

Handscoring Training Set 2

White-tailed deer from North America were brought to the islands of New Zealand around the year 1900. This species of deer has survived in several regions in New Zealand.

Part A: Explain why the white-tailed deer population is considered a nonnative species in New Zealand.

The white-tailed deer population in New Zealand is considered a nonnative species. This is because the white-tailed deer were brought to New Zealand from North American. Even though the white-tail deer survived in several regions in New Zealand, doesn't make them a native species to New Zealand. The white-tailed deer didn't come from New Zealand, so there for they are nonnative species.

393 / 1000

Part B: Describe one possible effect that a nonnative species can have on a native ecosystem and explain why this effect might occur.

There are possible effects that a nonnative species can have on a native ecosystem. They could eat food that is needed for other species need to survive. This would cause a shortage of food and could hurt the population of some native species. This effect might occur because the white-tailed deer are not used to being in that certain environment.

353 / 1000

White-tailed deer from North America were brought to the islands of New Zealand around the year 1900. This species of deer has survived in several regions in New Zealand.

Part A: Explain why the white-tailed deer population is considered a nonnative species in New Zealand.

Because they can't survive
in all the parts of the
country.

Continued. Please refer to the previous page for task explanation.

Part B: Describe one possible effect that a nonnative species can have on a native ecosystem and explain why this effect might occur.

It can cause the food chain to be messed up, This will affect it by off setting the order of things.

White-tailed deer from North America were brought to the islands of New Zealand around the year 1900. This species of deer has survived in several regions in New Zealand.

Part A: Explain why the white-tailed deer population is considered a nonnative species in New Zealand.

there is many in newzealand

28 / 1000

Part B: Describe one possible effect that a nonnative species can have on a native ecosystem and explain why this effect might occur.

it could over populate causing the native to move out

54 / 1000

White-tailed deer from North America were brought to the islands of New Zealand around the year 1900. This species of deer has survived in several regions in New Zealand.

Part A: Explain why the white-tailed deer population is considered a nonnative species in New Zealand.

The white-tailed deer population is considered a nonnative species to New Zealand because the deer have an effect on the native eco system.

139 / 1000

Part B: Describe one possible effect that a nonnative species can have on a native ecosystem and explain why this effect might occur.

One possible effect how a nonnative species can have on a native ecosystem is that a nonnative specie has to adapt to its surroundings and to do this it might destroy a home for another speicie.

194 / 1000

White-tailed deer from North America were brought to the islands of New Zealand around the year 1900. This species of deer has survived in several regions in New Zealand.

Part A: Explain why the white-tailed deer population is considered a nonnative species in New Zealand.

The white-tailed deer is a nonnative species in New Zealand because it was originally from North America, but the deer that were sent there reproduced making more offspring to grow up and reproduce again, which is why it still is in New Zealand.

246 / 1000

Part B: Describe one possible effect that a nonnative species can have on a native ecosystem and explain why this effect might occur.

The nonnative species will have to adapt to a new environment and get used to living there. The environment is different in every different place, the food, the water is located in different spaces, it might be bigger or smaller than the other.

243 / 1000

White-tailed deer from North America were brought to the islands of New Zealand around the year 1900. This species of deer has survived in several regions in New Zealand.

Part A: Explain why the white-tailed deer population is considered a nonnative species in New Zealand.

They were brought there they were never
there before.

Continued. Please refer to the previous page for task explanation.

Part B: Describe one possible effect that a nonnative species can have on a native ecosystem and explain why this effect might occur.

In the case of the deer it could give
the predators a new food source making
their populations grow.

White-tailed deer from North America were brought to the islands of New Zealand around the year 1900. This species of deer has survived in several regions in New Zealand.

Part A: Explain why the white-tailed deer population is considered a nonnative species in New Zealand.

The white-tailed deer population is considered a nonnative species to New Zealand because they have fit in well and have adapted to the lands. Also since they have been there since 1900, anyone living today would probably not know they are native because the deer have been there ever since the humsn have been there.

317 / 1000

Part B: Describe one possible effect that a nonnative species can have on a native ecosystem and explain why this effect might occur.

One possible effect that a nonnative species mite have on the native ecosystem is mating with the native ecosystem and producing a hybrid. This hybrid could very well be born with more adaptation to the land allowing it to survive longer and produce better adapted offspring. This could very easily occur becuase the the nonnative species can take an interest to the native species and reproduce offspring.

407 / 1000

White-tailed deer from North America were brought to the islands of New Zealand around the year 1900. This species of deer has survived in several regions in New Zealand.

Part A: Explain why the white-tailed deer population is considered a nonnative species in New Zealand.

they didn't always live there
they were brought there

Continued. Please refer to the previous page for task explanation.

Part B: Describe one possible effect that a nonnative species can have on a native ecosystem and explain why this effect might occur.

they could make another
species go extinct

White-tailed deer from North America were brought to the islands of New Zealand around the year 1900. This species of deer has survived in several regions in New Zealand.

Part A: Explain why the white-tailed deer population is considered a nonnative species in New Zealand.

because it came from north america not new zealand

50 / 1000

Part B: Describe one possible effect that a nonnative species can have on a native ecosystem and explain why this effect might occur.

the species might not be use to bein in the conidition that area has

68 / 1000

White-tailed deer from North America were brought to the islands of New Zealand around the year 1900. This species of deer has survived in several regions in New Zealand.

Part A: Explain why the white-tailed deer population is considered a nonnative species in New Zealand.

The deer adapted to its environment
it changed some of its traits so it can survive.

Continued. Please refer to the previous page for task explanation.

Part B: Describe one possible effect that a nonnative species can have on a native ecosystem and explain why this effect might occur.

One possible effect is that they have to learn all new things & native animals don't. The effect occurs because they weren't originally from that area.

Keystone Biology: Non-Native Species; Training Set 2

Subject: **Biology**

Item: **Non-Native Species**

Grade HS

Name _____

Number	Score	Notes
T2-1		
T2-2		
T2-3		
T2-4		
T2-5		
T2-6		
T2-7		
T2-8		
T2-9		
T2-10		

Keystone Biology

Non-Native Species

Handscoring Practice Set^{*}

*Responses in this set do not have true scores. Apply scores based on scoring criteria.

White-tailed deer from North America were brought to the islands of New Zealand around the year 1900. This species of deer has survived in several regions in New Zealand.

Part A: Explain why the white-tailed deer population is considered a nonnative species in New Zealand.

The white-tailed deer is considered a nonnative species because the white-tailed deer was brought from North America, it did not originate in New Zealand.

Continued. Please refer to the previous page for task explanation.

Part B: Describe one possible effect that a nonnative species can have on a native ecosystem and explain why this effect might occur.

A nonnative species might prey on an insect or another animal that a native species originally fed off of. This might cause the prey to become extinct, causing both predators to also become extinct. Also, the species that are least capable of living in the area might become extinct too.

White-tailed deer from North America were brought to the islands of New Zealand around the year 1900. This species of deer has survived in several regions in New Zealand.

Part A: Explain why the white-tailed deer population is considered a nonnative species in New Zealand.

The white-tailed deer population is considered a nonnative species in New Zealand because it is common around that area.

Continued. Please refer to the previous page for task explanation.

Part B: Describe one possible effect that a nonnative species can have on a native ecosystem and explain why this effect might occur.

That effect might occur because
the species may not adapt to
the area and could not possibly
survive.

White-tailed deer from North America were brought to the islands of New Zealand around the year 1900. This species of deer has survived in several regions in New Zealand.

Part A: Explain why the white-tailed deer population is considered a nonnative species in New Zealand.

considered nonnative because it has
survive in New Zealand for a long
time. These deer are not just come
and go deer, they survive for
a great deal of time.

Continued. Please refer to the previous page for task explanation.

Part B: Describe one possible effect that a nonnative species can have on a native ecosystem and explain why this effect might occur.

one effect that could happen is that they could over populate. When that happens there could be very serious economic effects.

White-tailed deer from North America were brought to the islands of New Zealand around the year 1900. This species of deer has survived in several regions in New Zealand.

Part A: Explain why the white-tailed deer population is considered a nonnative species in New Zealand.

The white-tailed deer population is considered a nonnative species in New Zealand because it was taken from a different nation and made to live on the islands that make up New Zealand. The white-tailed deer did not originate in New Zealand so therefore it is not a true native of that country. For example, a person is not able to run for president in the United States if they were not born in the country. It is the same thing with animals. The white-tailed deer was able to survive in New Zealand because the conditions there are similar to that of what they are used to in North America, however they were brought there by force and did not actually originate in New Zealand.

679 / 1000

Part B: Describe one possible effect that a nonnative species can have on a native ecosystem and explain why this effect might occur.

A nonnative species can rapidly decrease the abundance of a native ecosystem. A nonnative species may eat an insect that no other native species will eat and that can cause drastic differences in the performance of the ecosystem. This effect might occur because as the animal forms an adaptation to their new environment, they may eat foods that are more abundant, but vital to the survival of an ecosystem. This will cause a depletion in the animals that also eat this insect because as more and more nonnative species occur on the islands of New Zealand, less and less insects will be available for those animals that previously thrived off of those insects. Those native animals will then begin to die off and the animals that eat those animals will then die off due to a food shortage and before you know it, an entire ecosystem is transformed due to the occurrence of one nonnative species.

893 / 1000

White-tailed deer from North America were brought to the islands of New Zealand around the year 1900. This species of deer has survived in several regions in New Zealand.

Part A: Explain why the white-tailed deer population is considered a nonnative species in New Zealand.

The species was taken there so it is from a different location it did not originate from there.

96 / 1000

Part B: Describe one possible effect that a nonnative species can have on a native ecosystem and explain why this effect might occur.

A new breed of species may develop from cross reproduction between the non native white tailed deer and a native animal similar to the white tailed deer.

154 / 1000

White-tailed deer from North America were brought to the islands of New Zealand around the year 1900. This species of deer has survived in several regions in New Zealand.

Part A: Explain why the white-tailed deer population is considered a nonnative species in New Zealand.

It originated in North America and did not naturally migrate to New Zealand. Also, they've only been there for a little over a century.

Continued. Please refer to the previous page for task explanation.

Part B: Describe one possible effect that a nonnative species can have on a native ecosystem and explain why this effect might occur.

Nonnative species will effect
the food chain because
they have to find food
they can eat, and they
might not have any of
their natural predators
around.

White-tailed deer from North America were brought to the islands of New Zealand around the year 1900. This species of deer has survived in several regions in New Zealand.

Part A: Explain why the white-tailed deer population is considered a nonnative species in New Zealand.

The population of the white-tailed deer is nonnative because it was brought to New Zealand. Nonnative is when it was not originated from the country or place. Like Native Americans are called native because they were born here, from here. Were not from another country. The white-tailed deer was originated in North America and brought over to New Zealand. So this means they are nonnative.

394 / 1000

Part B: Describe one possible effect that a nonnative species can have on a native ecosystem and explain why this effect might occur.

The white-tailed deer (nonnative) can have an effect on a native ecosystem (New Zealand), because it is not used to that environment. It will be lost and have no sense of direction. When an animal is not used to its natural habitat it can have an effect on it. It can be bad because it will attack because it will not feel safe not only because it does not feel safe but it has no idea of that environment. It will not know how to survive or do anything because it is not in its home natural habitat.

502 / 1000

White-tailed deer from North America were brought to the islands of New Zealand around the year 1900. This species of deer has survived in several regions in New Zealand.

Part A: Explain why the white-tailed deer population is considered a nonnative species in New Zealand.

White-tailed-deer population is considered a nonnative species in New Zealand because it has other native animals in New Zealand around several regions of New Zealand. White-tailed-deer are nonnative because they are from North America and were brought to New Zealand.

265 / 1000

Part B: Describe one possible effect that a nonnative species can have on a native ecosystem and explain why this effect might occur.

The effect might be that the white-tailed-deer has a disease and it brings it over to another country and the animal makes North America look bad because the animal has the disease.

181 / 1000

White-tailed deer from North America were brought to the islands of New Zealand around the year 1900. This species of deer has survived in several regions in New Zealand.

Part A: Explain why the white-tailed deer population is considered a nonnative species in New Zealand.

It is considered a nonnative species because it can basically survive anywhere in New Zealand. It does not need a specific home or region to settle in.

152 / 1000

Part B: Describe one possible effect that a nonnative species can have on a native ecosystem and explain why this effect might occur.

This will affect a native ecosystem because they have their own specific habitat and work as a group. A new way of working will confuse the native ecosystem and the white-tailed deer.

183 / 1000

White-tailed deer from North America were brought to the islands of New Zealand around the year 1900. This species of deer has survived in several regions in New Zealand.

Part A: Explain why the white-tailed deer population is considered a nonnative species in New Zealand.

Because the white-tailed deer is not native of New Zealand, but rather brought from North America. Which means that the white-tailed deer is not a part of the ecosystem of New Zealand from the beginning, but rather moved over after a period of time.

249 / 1000

Part B: Describe one possible effect that a nonnative species can have on a native ecosystem and explain why this effect might occur.

One possible effect that a nonnative species can have on a native ecosystem is that the nonnative may cause some native species to decrease in population, or even die off. Because the nonnative might be a predator of the native species, and will cause the native species, which might have only a few predators in its native ecosystem, to experience a sudden decrease in population.

383 / 1000

Practice Set*

Subject: **Biology**

Item: **Non-Native Species**

Grade HS

Name _____

Number	Score	Consensus	Annotation
P-1			
P-2			
P-3			
P-4			
P-5			
P-6			
P-7			
P-8			
P-9			
P-10			

*Responses in this set do not have true scores. Apply scores based on scoring criteria.

Keystone Biology

Non-Native Species

Handscoring
Training Sets 1 and 2
True Scores/Annotations

Paper	Score	Comments
T1-1	2	Part A: brought from North America (shows origin was not New Zealand) Part B: Effect – No credit, no effect on the native ecosystem given Explanation – it can eat a lot of food and resources is acceptable explanation
T1-2	1	The response demonstrates a minimal understanding of how ecosystems change in response to natural and human disturbances (e.g., climate changes, introduction of nonnative species, pollution, fires) by completing one of the tasks in the item. The student explains that the white-tailed deer are considered a nonnative population in New Zealand because “they weren’t originally from New Zealand, they were originally from North America.” The description of the possible effect (<i>interfering with the ecosystem</i>) and the explanation why it might occur (<i>they weren’t there first</i>) are not specific enough for credit. This response contains work that is incomplete or unclear.
T1-3	2	Part A: the deer was originally from North America is acceptable for credit. Part B: 1pt – ‘overpopulation’ can be used as an effect or explanation in the correct context, but with no additional elaboration, student will receive only one point
T1-4	2	Part A: transferred to the region and not naturally born there Part B: 1Pt. – Correct Effect given (limited food available) but doesn’t explain why this effect might occur
T1-5	1	Part A: not originally found in New Zealand, they were brought over from North America Part B: Nothing for credit – no effect on a native ecosystem given
T1-6	3	Part A: they were not originally on the island, they were native another place Part B: Effect – disastrous changes in the food web...[causing] a major problem for the indigenous wildlife Explanation – non native species have no natural predators and can produce extremely fast. It could also be eating all the food the natives eat
T1-7	3	Part A: they weren’t originally there, they were move there from North America Part B: Correct effect – “decrease in other (native) organisms” with explanation (depletion of food) for credit
T1-8	1	Part A: Because they were brought to New Zealand from North America is acceptable Part B: Nothing for credit
T1-9	0	Part A: No credit – does not explain that the deer were not originally from New Zealand Part B: No credit – mating with a native species is not an acceptable effect on the native ecosystem
T1-10	3	Part A: white tailed deer did not originate in New Zealand; they were brought there from North America Part B: Effect – might lower the population of a native species Explanation – new species may be a competitor for the same resources or it could be a predator to the existing species Additional information does not detract from the correct information

Paper	Score	Comments
T2-1	3	Part A: white deer didn't come from New Zealand, they were brought there Part B: Effect – cause a shortage of food and hurt the population of the native species Explanation – they could eat the food needed for other species to survive
T2-2	1	Part A: No credit – does not explain why they are considered nonnative Part B: Effect – cause the food chain to be messed up Explanation – No credit, explanation not given
T2-3	2	Part A: No credit – does not explain why they are considered nonnative Part B: Effect – cause the native (populations) to move out Explanation – overpopulation of nonnative species
T2-4	1	Part A: No credit – does not explain why they are considered nonnative Part B: Effect – might destroy a home for another species Explanation – No credit, 'has to adapt to its surroundings' is not an acceptable explanation of given effect
T2-5	1	Part A: it was originally from North America Part B: Effect – No credit, no effect on native ecosystem given Explanation – No credit, attempts to explain why the nonnative population would have difficulty in the nonnative environment
T2-6	3	Part A: they were brought and not there before that Part B: Effect – make their (native predator) populations grow Explanation – the deer (nonnative population) could give the predators a new food source (effect given doesn't have to be negative or positive)
T2-7	0	Part A: No credit – attempts to explain why they could be considered native Part B: Effect – No credit – mating with native populations and creating 'hybrids' is not acceptable effect Explanation – No credit, effect is not acceptable so in this case so is explanation
T2-8	2	The response demonstrates a partial understanding of how ecosystems change in response to natural and human disturbances (e.g., climate changes, introduction of nonnative species, pollution, fires) by completing two of the tasks presented in the item. The student explains that the white-deer are considered a non-native population in New Zealand because "they didn't always live there, they were brought there." In Part B, the student describes a possible effect that a non-native species could have on a native ecosystem (<i>they could make another species go extinct</i>), but fail to explain why this effect might occur. This response contains work that is incomplete.
T2-9	1	Part A: they came (originated) from North America not New Zealand Part B: Effect – No credit, no effect given Explanation – No credit, attempt at explanation, but not enough for credit
T2-10	0	Part A: No credit – no explanation why they are considered nonnative Part B: Effect – No credit, no effect on native ecosystem given Explanation – No credit, attempt explaining why nonnative species may not fit into native environment