Name _____Class _____ Date _____

That's Amazing! Worksheet

Killer Kitties

with Dr. Michael Heithaus

Problem

What happens when cats go wild? There is no question that domestic cats can survive—and thrive—in the wild. In Australia, they are such impressive predators that they have established large populations. As cat populations grew, many native Australian species started to disappear. But cats aren't the only invaders. Foxes, goats, sheep, camels, and rabbits also established themselves in the wild. So, are cats solely to blame for the disappearance of native species?

INVESTIGATION

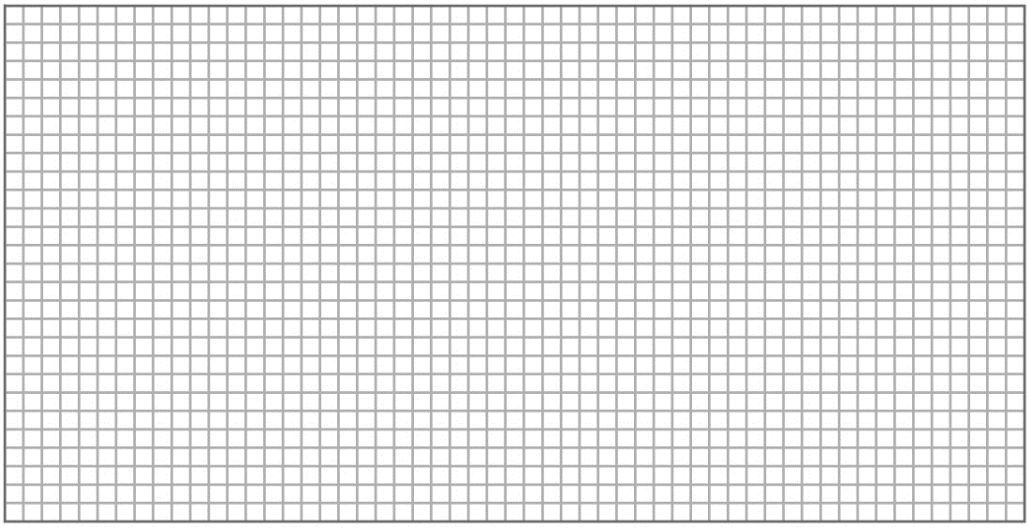
The Department of Environment and Conservation (DEC) has been trying to restore the native habitat and native animals (in Shark Bay). So, they've put up the Feral-Proof Fence to isolate the peninsula, and they are trying to get rid of invaders within the fence. Use their data below to investigate whether cats might be the major culprit in the decline of native species populations.

Foxes are introduced predators in Australia and eat native mammals, but also eat cats. The data in Table 1 provide track counts of foxes and cats at a location outside the fence where neither is controlled.

Table 1. Track counts (per 100 km) of foxes and cats at Nanga Station

Sampling period	Foxes	Cats
1	17	8
2	30	10
3	27	11
4	30	27
5	10	28
6	14	14
7	16	5
8	20	3
9	14	2
10	13	5
11	10	1
12	2	0
13	9	1
14	5	14
15	5	25

1. **Data Analysis** Draw a line graph of the number of tracks per 100 km through time for foxes and cats.



2. **Data Analysis** Based on your graph, do you think that foxes might affect the number of cats in an area? Do other factors appear to affect the number of cats? Explain.

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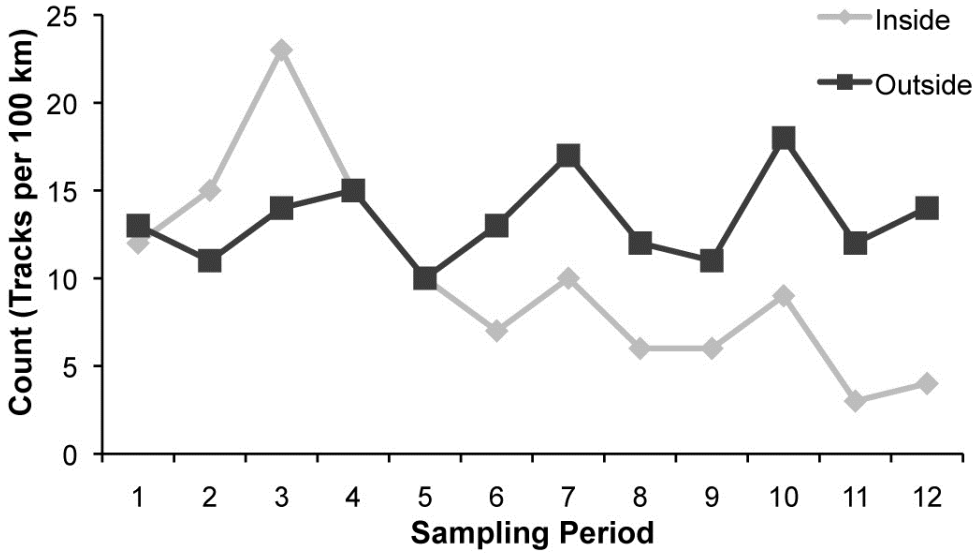
One of the first things DEC did in Shark Bay was to get rid of the foxes. The effort was very effective and nearly all the foxes were removed within a short period of time after starting control efforts. Cats have been much harder to control than foxes, as shown in Figure 1 on the next page.

Figure 1. Counts of cat tracks inside and outside the Feral-Proof Fence. Counts start at the time DEC started removing feral animals (including foxes and cats).



3. **Data Analysis** Is the Department of Environment and Conservation's effort to remove cats from Peron Peninsula a success? Why or why not? Use the data to support your answer.

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4. Why do you think cat numbers went up inside the fenced area in sampling periods 2 and 3?

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5. Why do you think cat numbers declined inside the fenced area beginning at sampling period 3 and onward?

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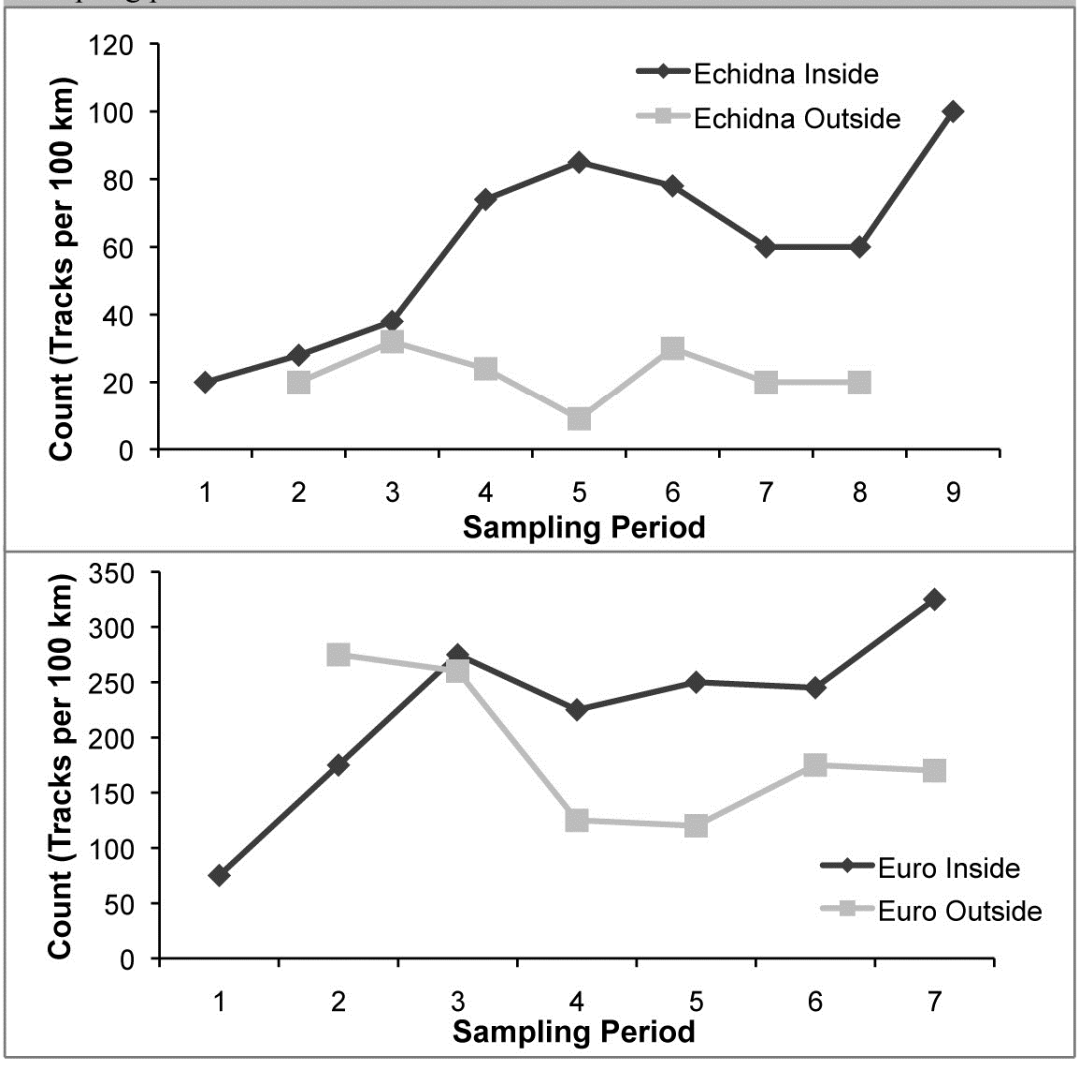
With foxes and other introduced mammals almost completely removed from Peron Peninsula and decreased cat population numbers, we can explore the effects of cats on an ecosystem. Use the graphs on the next page to answer the following questions.

Figure 2. Track counts of two species of native mammals: echidnas (top) and euros (a type of wallaby; bottom). Both species were present before the removal of introduced animals inside the fence. The dark gray lines show data from the area where cats and other invasive species are being controlled, and the light gray line indicates data from areas where cats and other invasive species are not being controlled. DEC started removing feral animals before counts in sampling period 1 were recorded.



6. **Data Analysis** Describe the trends you see in native Australian animal populations in the area where cats are controlled compared to where they are not controlled. What do you think is responsible for these trends?

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7. **Data Analysis** Has the removal of introduced animals helped these two native mammal populations? Explain your answer.

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8. Why is it important that DEC measured populations inside *and* outside the control area?

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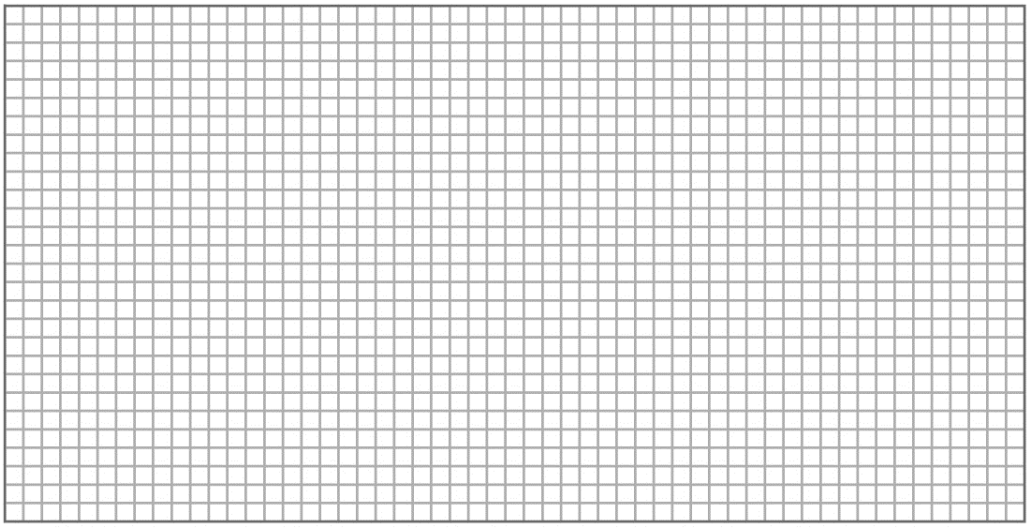
DEC has been trying to reintroduce species of mammals to Peron Peninsula that were driven to extinction, or greatly reduced in numbers, on the mainland of Australia. The bilby is a burrower, the malleefowl sleeps in trees, and the banded hare-wallaby sleeps under bushes. All of these species thrived in Western Australia before feral animals arrived.

Table 2. Population sizes of three species of native animals on Peron Peninsula

Sampling period	Bilby	Malleefowl	Banded hare-wallaby
1	0	8	0
2	0	8	0
3	0	8	0
4	0	8	0
5	0	8	0
6	0	12	0
7	30	42	30
8	32	40	32
9	28	42	18
10	29	46	11
11	33	50	4
12	36	54	0

9. **Data Analysis** Use the data in Table 2 to create a line graph showing the changes in populations of bilbies, malleefowl, and banded hare-wallabies through time. Put an arrow on your graph at Sampling Period 7. This is the time period when 30 individuals of each species (15 males, 15 females) were introduced to the peninsula.



10. **Data Analysis** Has the reintroduction program been a success on Peron Peninsula? Why or why not? Use the data to justify your answer.

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11. **Data Analysis** Compare and contrast the effects of cats on each of the three species. Develop a hypothesis for why you see similarities and differences.

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CONCLUSION

12. What do you think house cats that spend time outside in the United States do? Do you think they might have an effect on local wildlife? Why or why not?

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13. **Extension** What further studies would you propose to do to help answer this question?

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