

Video zone – How wolves change rivers

Tasks

Instructions

Do the preparation task first. Then watch the video and do the exercise. You can also read the transcript.

Preparation task

Match the definitions (a–h) with the vocabulary (1–8).

Vocabulary	Definition
1. finding	a. not covered by trees or grass
2. food chain	b. without being prevented by
3. to be aware	c. not movable or changeable
4. despite	d. to know
5. radically	e. plants and animals that are connected because some eat others
6. bare	f. discovery
7. bank	g. a lot and in an important way
8. fixed	h. land on the side of a river (or lake)

Task 1 – True or false?

Are the sentences true or false?

	Answers	
1. Wolves had never lived in Yellowstone National Park before 1995.	<i>True</i>	<i>False</i>
2. Before 1995, there were so many deer in the park that the ecosystem was suffering.	<i>True</i>	<i>False</i>
3. The main impact of the wolves was that they ate a lot of deer.	<i>True</i>	<i>False</i>
4. Plants in different parts of the park regenerated because the deer avoided them.	<i>True</i>	<i>False</i>
5. Wolves and beavers create specific habitats for other plants and animals.	<i>True</i>	<i>False</i>

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|---|-------------|--------------|
| 6. The numbers of birds in the park also grew due to the increased availability of food. | <i>True</i> | <i>False</i> |
| 7. The wolves made the rivers go in different directions. | <i>True</i> | <i>False</i> |
| 8. The video shows that just one change can have a very big effect across a whole system. | <i>True</i> | <i>False</i> |

Discussion

What kinds of small changes can we make to have a big effect?

Transcript

One of the most exciting scientific findings of the past half century has been the discovery of widespread trophic cascades. A trophic cascade is an ecological process which starts at the top of the food chain and tumbles all the way down to the bottom. And the classic example is what happened in the Yellowstone National Park in the United States when wolves were reintroduced in 1995.

Now, we all know that wolves kill various species of animals, but perhaps we're slightly less aware that they give life to many others. Before the wolves turned up they'd been absent for 70 years, but the numbers of deer, because there had been nothing to hunt them, had built up and built up in the Yellowstone Park and despite efforts by humans to control them they'd managed to reduce much of the vegetation there to almost nothing. They had just grazed it away.

But as soon as the wolves arrived, even though they were few in number, they started to have the most remarkable effects. First, of course, they killed some of the deer but that wasn't the major thing. Much more significantly, they radically changed the behaviour of the deer. The deer started avoiding certain parts of the park – the places where they could be trapped most easily, particularly the valleys and the gorges – and immediately those places started to regenerate.

In some areas, the height of the trees quintupled in just six years. Bare valley sides quickly became forests of aspen and willow and cottonwood. And as soon as that happened, the birds started moving in. The number of songbirds and migratory birds started to increase greatly. The number of beavers started to increase because beavers like to eat the trees. And beavers, like wolves, are ecosystem engineers. They create niches for other species. And the dams they built in the rivers provided habitats for otters and muskrats and ducks and fish and reptiles and amphibians. The wolves killed coyotes and as a result of that the number of rabbits and mice began to rise, which meant more hawks, more weasels, more foxes, more badgers ...

Ravens and bald eagles came down to feed on the carrion that the wolves had left. Bears fed on it too, and their population began to rise as well, partly also because there were more berries growing on the regenerating shrubs. And the bears reinforced the impact of the wolves by killing some of the calves of the deer.

But here's where it gets really interesting.

The wolves changed the behaviour of the rivers. They began to meander less. There was less erosion. The channels narrowed. More pools formed. More riffle sections. All of which were great for wildlife habitats.

The rivers changed in response to the wolves. And the reason was that the regenerating forests stabilised the banks so that they collapsed less often, so that the rivers became more fixed in their course. Similarly, by driving the deer out of some places and the vegetation recovering on the valley sides, there was less soil erosion because the vegetation stabilised that as well.

So the wolves, small in number, transformed not just the ecosystem of the Yellowstone National Park – this huge area of land – but also its physical geography.

Answers

Preparation

1. f
2. e
3. d
4. b
5. g
6. a
7. h
8. c

Task 1

1. False
2. True
3. False
4. True
5. True
6. True
7. False
8. True