

## Preventing the theft of turtle eggs

*Conservationists and law enforcement have struggled to prevent wildlife trafficking. But could some plastic eggs and GPS trackers change the game?*

Humans have been eating sea turtle eggs (and killing adult turtles for meat) for millennia. However, as human populations exploded and as sea turtles began to confront additional threats such as intensive fishing, beach development and climate change, sea turtle populations declined precipitously. Today, all but one of the world's seven species of sea turtles are considered threatened according to the IUCN\* Red List. And the one that's not – the flatback turtle – is listed as data deficient, which means scientists simply don't know how it's doing.

One major problem is that every year millions of sea turtle eggs are illegally taken by poachers for sale on the black market. The situation is particularly serious in Nicaragua, in Central America, which is home to four sea turtle species.

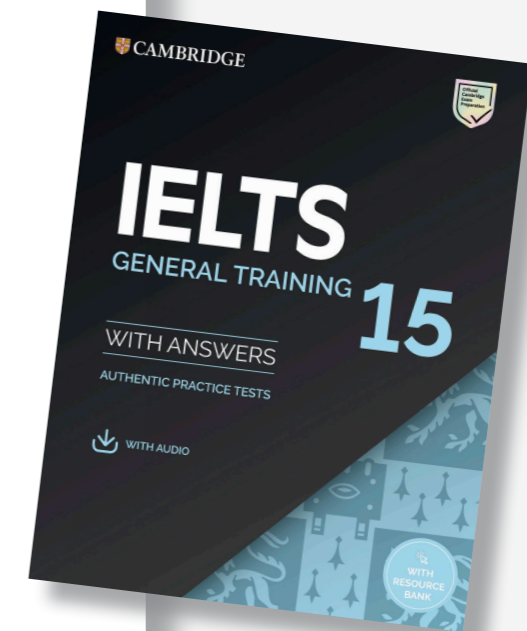
Kim Williams-Guillen, who works for conservation body Paso Pacifico, described the poaching of sea turtle nests on the beaches of Nicaragua as 'uncontrolled, unregulated, extensive and contested'. Even the best-protected beaches are plundered to some extent and it's not uncommon to see poachers digging up nests just meters from tourists watching sea turtles laying their clutch at night, she said. This poaching becomes particularly frenzied during the *arribadas* – mass laying events where thousands of turtles nest on the same beach for a single night in a biological strategy to overwhelm natural predators.

'Even with armed guards, the numbers of poachers overwhelm military personnel by ten or twenty to one,' Williams-Guillen said. 'Although many poachers are locals with limited resources, during these *arribadas* there are influxes of gangs of poachers from larger cities outside local communities. These are not just local poor people without other options.'

But to protect the country's sea turtles, Williams-Guillen said conservationists shouldn't just depend on catching low-level operators. 'If one poacher decides to stop, another one will just step into his place ... we need to know more about the middlemen and people higher up in the distribution chain,' she said.

Paso Pacifico's solution is the creation of high-tech sea turtle eggs: fake eggs convincingly crafted to look like the real thing, but which contain GPS tracking devices. These have the potential to reveal the destination markets for trafficked sea turtle eggs.

\*IUCN: International Union for Conservation of Nature



Making convincing sea turtle eggs is not easy, and Paso Pacifico is still working on perfecting a prototype. In particular, it's proving quite problematic to create the right texture, since sea turtle eggs are not covered in a hard shell like those of birds, but are quite flexible.

So Paso Pacifico brought in Lauren Wilde, a special effects artist in the US, to create a convincing outer shell. First, Wilde had to get her hands on the real thing. Since it's illegal to send sea turtle eggs over the border, Wilde is using land turtle eggs from California. 'It was really eye opening and important for me to feel these eggs and how the shell bends a little,' she said.

To get the GPS device inside the shell, Paso Pacifico is using 3D printers to make a plastic ball which will then have a GPS transmitter fitted inside. This will take the place of the embryo inside the shell. Lastly the fake shells will be sealed with silicone, waterproofing them.

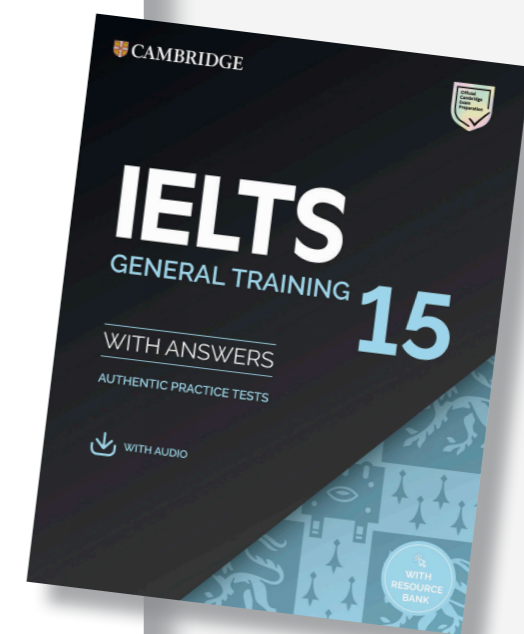
Sea turtles on average lay around 100 eggs in a nest, and once the fake eggs are finished they will be slipped in with the real ones. Williams-Guillen said it might even be possible to deliver fake eggs into nests while poachers are at work. Wary of tourists, poachers will often back off if strangers come near and then return when they have gone. 'It would be pretty easy to drop an egg in the dark into a nest they have been digging up,' she said.

Once the poacher picks up the fake egg along with the real ones, conservationists and law enforcement agents will be able to track them. Experts believe most of the stolen eggs eventually make their way out of Nicaragua, possibly to El Salvador or Guatemala. However, there is also growing concern that sea turtle eggs from Central America are actually heading to the USA, from where they are sold on to other countries around the world.

To date, Paso Pacifico has yet to put a single fake egg in a nest. But Williams-Guillen said she isn't too concerned that publicity for their scheme will result in poachers looking for the eggs. 'The vast majority of the poaching is happening at night, so already it is hard to tell [the eggs] apart, and at this point, poachers and middlemen are not closely inspecting eggs, but rather shoving them into a sack as quickly as possible.'

Of course, poachers will eventually become aware of the prospect of fake eggs among the real ones – especially when customers try to bite into an egg and break their teeth on the GPS transmitter instead. So, Paso Pacifico plans to do a massive deployment of as many fakes as possible to gather a lot of data before poachers get wise.

Knowing where the eggs go will allow conservationists and law enforcement agents to focus their resources on the right places – whether it be through awareness-building campaigns or crackdowns on illegal sellers. And eventually Paso Pacifico hopes to share the technology with interested parties around the world.



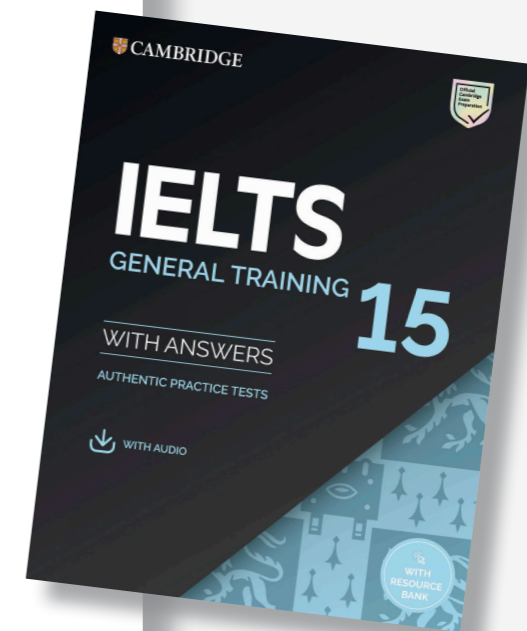
Reading exercise from  
*IELTS 15 General Training.*

Questions 34–37

Choose the correct letter, **A**, **B**, **C** or **D**.

Write the correct letter in boxes 34–37 on your answer sheet.

- 34 What does the writer suggest about the flatback turtle?
- A It could be as severely threatened as other turtles.
  - B It has been neglected by scientists in the past.
  - C It is in less danger than some other species.
  - D It should be removed from the IUCN Red List.
- 35 Williams-Guillen says that the poaching of sea turtle eggs in Nicaragua
- A is mainly carried out by local people.
  - B may be encouraged by the presence of tourists.
  - C sometimes has a highly organised structure.
  - D can only be controlled by the use of armed guards.
- 36 In Section E, Williams-Guillen says that one way to encourage poachers to take the fake eggs is to
- A make fake nests and put the eggs into them.
  - B put them in nests with just a few real eggs.
  - C distract the poachers after the fake eggs have been put in the nests.
  - D put them in nests that the poachers have started to dig up.
- 37 It is planned to use a large number of fake eggs at the beginning because
- A some of the fake eggs may be missed by the poachers.
  - B it may not be possible to continue the project indefinitely.
  - C some eggs may be hidden in the sand.
  - D it may not be feasible to fund long-term research.



Reading exercise  
questions from  
*IELTS 15 General Training*.

**34 The correct answer is A:** In Section A, the writer says, ‘the flatback turtle – is listed as data deficient, which means scientists simply don’t know how it’s doing’. Since ‘all but one of the world’s seven species of sea turtles are considered threatened’, he suggests that this species is probably threatened too. **B is incorrect:** Although the text says that there is not enough data on the flatback turtle (it is ‘listed as data deficient’), there is no mention in the text that scientists have neglected it. **C is incorrect** because the text suggests that the flatback turtle is probably in as much danger as the other species of sea turtle. **D is incorrect** because the flatback turtle is not on the IUCN Red List, so it cannot be removed from it.

**35 The correct answer is C:** In Section C, Williams-Guillen describes the poaching gangs. She talks about ‘low-level operators’, ‘middlemen and people higher up in the distribution chain’, so some gangs are clearly well organised. **A is incorrect** because it says, ‘there are influxes of gangs of poachers from larger cities outside local communities. These are not just local poor people’. **B is incorrect** because the text says, ‘it’s not uncommon to see poachers digging up nests just meters from tourists watching sea turtles laying their clutch at night’. Although the poachers take eggs even when tourists are present, there is no suggestion that the tourists encourage the poachers. **D is incorrect** because Williams-Guillen says, ‘Even the best-protected beaches are plundered to some extent’ and ‘Even with armed guards, the numbers of poachers overwhelm military personnel by ten or twenty to one’.

**36 The correct answer is D:** In Section E, Williams-Guillen says, ‘It would be pretty easy to drop an egg in the dark into a nest [the poachers] have been digging up’. **A is incorrect** because there is no mention of making fake nests. **B is incorrect** because although the text mentions putting a fake egg into a real nest, it does not mention that there should be just a few real eggs in that nest. **C is incorrect** because the text does not mention distracting the poachers. It only says that poachers often ‘back off (go away) if strangers come near and then return when they have gone’.

**37 The correct answer is B:** In Section F, the text says, ‘poachers will eventually become aware of the prospect of fake eggs among the real ones ... So, Paso Pacifico plans to do a massive deployment of as many fakes as possible to gather a lot of data before poachers get wise.’ **A is incorrect** because although the text suggests that some of the eggs will be missed by the poachers on the beaches, that is not why Paso Pacifico is planning to use a large number of eggs at the beginning. They know they have a limited time to gather data. **C is incorrect** because there is no mention in the text of some eggs staying hidden in the sand. **D is incorrect** because there is no mention of how the project is to be funded.

