Endoscopy reveals shag parasites

Planet Earth Online

This site is using cookies to collect anonymous visitor statistics and enhance the user experience. OK | Find out more

Our most recent stories are now available on the mobile version of Planet Earth Online.

Planet Earth Online

Natural Environment Research Council Home Planet Earth Online homepage

- Log in

Search

NATURAL ENVIRONMENT RESEARCH COUNCIL

NEWS FROM THE NATURAL WORLD
Planet Earth Online

- Home
- News
- Features
- Podcasts & video
- Blog

- Contact us
- About us

JavaScript seems to be disabled on your browser - some functions on this site will not work without it (details)

Latest news

- Endoscopy reveals shag parasites
- Earliest cheese-making in central Europe revealed
- Top conservation issues to look out for in 2013
- Accurate flood forecasting gets closer
- World is way off course for CO2 reduction targets

Top stories

News

- Tree of life branches out online
- Warmer Atlantic blamed for UK's gloomy summers

Features

- Prehistoric mummy puzzle
- Woodland warfare in a warming world

Podcasts & video

- Forecasting solar storms, fish personalities
- Early tetrapods, upland rivers, North Anatolian Fault

News

Endoscope reveals shag parasites

14 December 2012, by Tom Marshall

Scientists have devised an innovative way to count the parasitic worms in seabirds' stomachs - sticking an endoscope down their throats and taking a look.

The results suggest that European shags living on the Isle of May nature reserve off the east coast of Scotland are riddled with many more parasites than scientists thought. All the birds examined had some worms, and an unexpectedly large proportion – more than a third – fell into the highest category with 40 or more.

It's previously been hard to get an accurate picture of how many parasites adult seabirds are carrying - a subject with important implications for their population dynamics and ecology. You can count the worm eggs in their faeces, but identifying and collecting a particular seabird's faeces is difficult. Or you can kill the bird and dissect it to find out what's in its stomach, but this presents obvious welfare problems and isn't possible with protected birds in a nature reserve. It can also only ever provide one reading per animal, so it can't be used to track changes over time.

Parasites have a major impact on the population dynamics and ecology of many animals, but they are difficult to study in the wild. The breakthrough should help change this, providing new insights into the complex processes that work together to control wild animal's numbers and behaviour.

Dr Sarah Burthe of the Centre for Ecology & Hydrology (CEH), who led the research, says she didn't expect to find such consistent parasite infestation across all the shags. 'We thought there would be some with no parasites at all, but this wasn't what we found,' she says. 'Although we found other patterns that were more in line with expectations; for example that late-breeding males had many more parasites.'

She says that males that breed late in the season are often seen as being poorer in quality, or perhaps just younger and less experienced, than those that get on with it earlier in the season. Greater parasite infestation could be a consequence of that, or perhaps even its cause.

The team's methods were simple enough; they caught 68 shags during the breeding season, put the endoscope into their stomachs and counted how many worms they could see.

Burthe explains that results suggest the earlier alternative methods aren't entirely reliable. The results of faecal egg counts seem to have given an unrealistically low measure of how many parasites the birds were hosting compared to the endoscopy results. Earlier studies based on dosing animals with anti-parasite drugs also seem

to have been flawed; they turn out to have used too low a dose to kill all the worms in a bird.

The birds get the parasitic nematode worms from the fish they eat. The parasites then attach themselves to their stomach walls; from then on, whenever the shag eats, its worms let go of the stomach wall, swim into the middle of their stomach and tuck into the bird's meal. So every worm a bird is carrying has a direct impact on how much energy it gets from its food and can then use for surviving, breeding and rearing chicks.

Endoscopes are often used by vets, and could now give researchers a much more accurate way of gauging how many parasites animals are carrying in their stomachs. Burthe says it won't be suitable for studying all animals and their parasites - it wouldn't work for parasites that live lower down in the digestive tract beyond the stomach, for example, or for those that are too small to see and count with the naked eye. But where it is applicable, it could be extended to let scientists collect worms as well as counting them.

'Being able to monitor individual parasite burdens is a major step forward in this field of research,' adds co-author Dr Francis Daunt, also of CEH. 'We are hopeful this new technique could be applied to other wild animal systems, possibly including reptile, mammal and other bird hosts.'

The researchers debated whether to anaesthetise the birds before applying the endoscope. On the one hand nobody particularly likes having a metal probe pushed down their throat, and there's no reason to think shags are an exception – although their habits of swallowing large fish whole and then letting their chicks stick their heads and necks deep into their throats to dine on regurgitated food probably mean they object less to the experience than some animals would.

On the other hand, knocking the shags out during the operation with anaesthetic causes much more disruption to their routines and prevents them from breeding or caring for chicks for much longer - hours rather than a few minutes. The researchers started out with anaesthetised birds but eventually decided it was better to get things over with as quickly as possible. A vet supervised the first few endoscopies, judging the level of discomfort to the shags to be acceptable.

The paper appears in *Methods in Ecology and Evolution*.

SOURCE [1]

Source URL (retrieved on *04/01/2015 - 1:09am*):
http://www.chem.info/news/2012/12/endoscopy-reveals-shag-parasites?qt-most_popular=0

Links:

[1] http://planetearth.nerc.ac.uk/news/story.aspx?id=1332