



Encyclopedia of Life

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## Red Paper Lantern Jelly Podcast and Scientist Interview

*Pandeia rubra*

Vacuumed up from its habitat a mile down in the ocean, the red paper lantern jelly may not look like much. Mostly water, it's so fragile that once brought to the surface it's reduced to a tattered blob in a jar. But this unassuming jellyfish has lessons for scientists. It's teaching researchers in Japan how intricately life is connected down in the ocean's deep, dark depths—and how the fate of this small red lantern sheds light on the fragility of life close to home.

### Transcript

**Ari:** From the Encyclopedia of Life, this is: One Species at a Time. I'm Ari Daniel Shapiro. At the JAMSTEC marine research center just south of Tokyo, Dhugal Lindsay's looking for a specimen.

**Lindsay:** Ah, here it is.

**Ari:** He's found it. Lindsay holds up a jar the size of a beer pint. A preserved brown blob's settled to the bottom.

**Lindsay:** I've called it the red paper lantern jelly.

**Ari:** It's a type of jellyfish. But when Lindsay used his underwater robot – kind of like a marine vacuum cleaner – to capture the specimen – taking it from almost half a mile deep and bringing it to the surface – it didn't hold up.

**Lindsay:** It was still ripped in half, the stomach is almost gone. And this is an animal that we were very careful in collecting. Their bodies are like 95% water, which means if you try and catch them – pchoo! – they blow up. There's not much of them left.

**Ari:** The brown blob doesn't look like much. But then Lindsay takes me down the hall to his video lab.

**Lindsay:** It's where we analyze the videotapes from the robots and submersibles.

**Ari:** It's like a broadcast television studio. Thirty monitors of all sizes line the walls. Lindsay pops a cassette into a tape deck, and cues up a floating jellyfish.

**Lindsay:** Here we go. This is *Pandea rubra* – the red paper lantern jelly.

**Ari:** It appears to be a completely different animal from the one in the jar.

**Lindsay:** It's so graceful and it's just floating there like a dream.

**Ari:** When I see it, the name makes sense. The jellyfish has a clear bell. Tentacles dangle beneath it awaiting prey. But inside it, there's what looks like a tiny red paper lantern. Yoshiko Takeoka is an administrator at JAMSTEC. She's been watching the video too, and she's fond of the name red paper lantern jelly.

**Takeoka:** Yes, lantern, just like we can find outside in Tokyo at the place where we drink alcohol. In Japan, there's an akechochin outside of the bar telling there is alcohol here.

**Ari:** The akechochin is a lantern, red lantern?

**Takeoka:** Yes.

**Ari:** Ok, and this is ake–

**Takeoka:** Akekochin kurage.

**Ari:** Akekochin kurage, which is red lantern jelly. I see.

**Takeoka:** Yes, I love it very much.

**Ari:** Lindsay gave the jelly its common name. One reason: the haiku poetry that he writes.

**Lindsay:** When I think of Japanese names for these jellyfish, I always make sure they fit in either 5, 7 or 5 syllables and that they'd be good for writing poems about.

**Ari:** So this one has how many syllables?

**Lindsay:** The first five syllables is akechochin. Kurage is part of the middle 7, and then you can keep on going from there. If it was akecho, it would only be four and you kind of lose the rhythm there.

**Ari:** Lindsay had another motive for naming the jellyfish after the red lanterns hanging outside Japanese bars.

**Lindsay:** Because of all the animals that come to visit. It's just like a bar where you have all these different people coming in. Everyone wants to live on this jellyfish.

**Ari:** In the deep sea where it's just water everywhere – there's nothing to hold onto – not even the seafloor. Often the only option for settling down is on or in another creature. And Lindsay's found that the akekochin kurage are important places for other animals to live.

**Lindsay:** We were noticing – oh, look, there's a pair of sea spiders, a male and a female. And the male is carrying the eggs on its back, so they're obviously reproducing there. We had another animal, which had a little amphipod sitting on the surface of the jellyfish. We had another animal that we caught – there's a whole group of other little jellyfish that were living inside it. And looking through them we saw there are many amphipods and other animals that live on them as well.

**Ari:** It goes the other way too. At a different stage of its development, a jellyfish looks like a sea anemone. It's called a polyp.

**Lindsay:** Polyps, they need a substrate to attach to – they can't swim or float by themselves. They need to be attached to something.

**Ari:** For the red paper lantern jellyfish, that something is the shell of a particular species of snail. It won't attach to anything else – not a different animal, not another kind of snail, not even a dead snail of the right species. But this underwater ballet of animals living on and in each other as they float through the water ... is in danger. The culprit: increasing levels of carbon dioxide in our atmosphere. A good amount of that CO<sub>2</sub> ends up dissolving in the ocean and forming carbonic acid.

**Lindsay:** This is the stuff in your coke that melts your teeth. It not only melts your teeth – it also melts anything made of calcium carbonate.

**Ari:** Which includes snail shells. Ocean acidification – this process of carbon dioxide dissolving in the ocean and making it more acidic – is bad news for lots of species.

**Lindsay:** So if the snails get taken out by acidification of the ocean, the jellyfish gets taken out. The jellyfish gets taken out – the sea fleas and the sea spiders and the other baby jellyfishes get taken out. And so it's just a cascade of bad effects right from the surface layers all the way into the deep sea.

**Ari:** Here's a haiku Lindsay wrote aboard a research vessel one night.

**Lindsay:** <Japanese> A shooting star // The ocean floor too far below // To drop anchor

**Ari:** Lindsay was thinking about the space we occupy between the atmosphere and the ocean floor – two realms beyond our reach. But his science shows him otherwise – that our actions can affect the fragile worlds both far above us and deep below.

Our series, One Species at a Time, is produced by Atlantic Public Media in Woods Hole, Massachusetts. I'm Ari Daniel Shapiro.

## Meet the Scientist

Meet Dhugal Lindsay, the scientist featured in the Red Paper Lantern Jelly podcast:



### Where do you work?

I am a Research Scientist and PICASSO Project Leader at the Japan Agency for Marine-Earth Science and Technology (JAMSTEC).

### What do you study?

I study the biodiversity of deep-sea plankton, mostly using manned submersibles and robots, with a focus on the hard-to-catch-in-one-piece gelatinous forms.

### What are three titles you would give yourself?

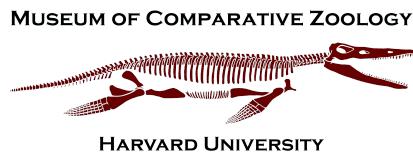
Marine biologist, haiku poet, explorer.

**What do you like to do when you are not working?**

Play beach volleyball or compose haiku.

**What do you like most about science?**

Knowing you are probably the only person in history who has ever seen what you are looking at and then being able to tell everyone about the amazing things that are out there waiting to be discovered.



The One Species at a Time podcast series is supported by the Harvard Museum of Comparative Zoology.