



# SHOWCASING THE BEAUTY OF BIODIVERSITY IN MUSEUMS WITH PTZ AND PROJECTION

**Company Name:** Naturalis Biodiversity Center  
**Industry:** Research & Education  
**Founded:** 1820  
**Location:** Leiden, Netherlands  
**Services:** Museum and research facilities  
**Website:** [naturalis.nl](https://www.naturalis.nl)  
**Products Purchased:** CR-N300 (4 units), WUX5800Z (13 units) & WUX6600Z (8 units), RS-SL06UW Lenses (21 units)  
**Canon Installation Partner:** Ata Tech BV, ALV Productions, SemMika

## Objective

- Live stream and record world-class natural history research and educational workshops to reach a new worldwide audience
- Create an end-to-end digital imaging solution
- Deliver a user-friendly operation so support team not required for standard usage
- Bring existing audiences closer to science
- Integrate new kit within existing infrastructure
- Tell more immersive stories

## Challenges

- Small support team with limited resources but good technical knowledge drain on IT resources
- Lack of automation capabilities
- Outdated rigid set-up from the old museum

## Approach

Five years ago, Naturalis undertook a museum rebuild and one of their consultants proposed several Canon projectors for use throughout different galleries. The new HDBaseT projectors were supplied by Ata Tech, with Canon being the preferred digital imaging supplier.

When the museum needed new PTZ cameras, Naturalis worked with its partner ALV Productions to facilitate a package for the new Canon PTZ cameras, as they were pleased with the previous service and product quality they received from Canon.

## Scope

Completed in 2019, the new Naturalis Biodiversity Center required a more modern set-up as one of the most prestigious research institutes in the country. Holding a special cultural place in Dutch society, Naturalis has a wide-ranging audience with frequent spots on TV and other broadcasting talk shows. With international influence and visibility, it was imperative to find better ways of telling fascinating stories to an even larger audience, amidst the pandemic.

## Results

- Exceptional image quality resulted in professional live streams
- Streamlined production workflow
- Improved integration with sophisticated software



“We were attracted by the flexibility of NDI in the Canon CR-N300 PTZ camera, which enables all the footage to be kept independently and sent anywhere in the venue network. It means I can show what I want, where I want – whether that’s on the screen for online viewers, or on the big TV here in the Lab.”

**Ashwin Singh-van Grevenhof**  
Engineering Technician, Naturalis

- Enhanced usability with image presets for less experienced employees
- Efficient set-up with fewer cables
- Easily implementable tech for the end user
- Higher employee satisfaction

## Learning never stops

As one of the top five natural history museums in the world, Naturalis Biodiversity Center in The Netherlands welcomes nearly half a million visitors a year. Its mission is to record all life on earth and showcase the beauty of nature, while providing a combined educational experience of seeing and doing for an audience of all ages. It won European Museum of the Year 2021, and with around 42 million specimens, it is home to one of the world's largest natural history collections.

After moving to a new, bespoke building, Naturalis needed to improve its live stream capabilities to complement the custom-built network infrastructure. The equipment in the previous museum was too old-fashioned and rigid. Due

to the global pandemic the institution faced multiple closures, which also became the catalyst for upgrading to ensure they could still share world-class research and discoveries with an at-home audience.

The in-house production team wanted an easy-to-use 4K UHD solution that could offer the professional look and feel it deserved.

“In the new building, we needed high-quality, user-friendly PTZ cameras that would eventually become self-supporting so that everybody could use it with a bit of training,” says Ashwin Singh-van Grevenhof, engineering technician at Naturalis. “Our team is small, so usability was a key deciding factor, alongside Canon’s excellent image quality.”

## The power to amaze

Naturalis believes in the power of ‘verbazen’ to educate – meaning ‘amaze’ in Dutch – from live taxidermy sessions to recently discovered dinosaur bones. Inside its Studio Lab, this translates into inviting visitors to observe the scientists up close



while they work and ask questions directly – both in-person and online. Catering for two sets of audiences, this hybrid event model has its own challenges to overcome.

“This control protocol lets me tell more engaging stories for our audiences, wherever they are. Now I couldn’t imagine a world without it. It’s brilliant – picking up audio through NDI is so easy,” he adds. “The flexibility is ideal for me. It reproduces the exact picture I want. So, it’s definitely a game-changer and the reason we took the rig apart and rebuilt it from the ground up with NDI in mind.”

### Need for speed

What happens when you have a few thousand people – including lots of excited children – in the museum at one time? The building can quake, confirms Ashwin: “The optical image stabiliser is a really useful feature to help counteract the daily bustle from inside the building. In this respect, the CR-N300 has performed exceptionally well.”



“How sharp and diagonal you can point them without losing picture quality is amazing.”

“We pan our PTZs quickly, so the fast and accurate Hybrid Auto Focus is essential to maintain a professional shot even in low light.”

Ashwin adds: “We also pan our four PTZs quickly from scene to scene, so the fast and accurate Hybrid Auto Focus is essential to maintain a professional shot even in low light.” To make life even easier for his colleagues, he enjoys automating image presets on the CR-N300 for whoever is behind the joystick. He also uses a Skaarhoj controller which connects seamlessly with a variety of PTZ cameras including Canon.

Feedback has been very positive so far with employees excited to experiment and play with the product, thanks to its intuitive controls. Upon the advice of their local Canon representative, the Naturalis team transferred to vMix, a software that seamlessly integrates with the Canon gear and provides a more sophisticated set of tools. For example, the plug-in vMix Social allows online viewers to actively participate in the live discussion, without the need to design any graphics from scratch.

PTZs are typically positioned in hard-to-reach places, in some cases upside down. For Ashwin, “the easiest thing about installing these cameras is that they only have one cable. Our previous cameras ran off three!” When you have to attach four cameras to a six-metre-high truss, the number of cables makes a big difference to the installation.

## Not just cameras

Beyond the CR-N300s, Canon’s integration partners provided Naturalis with a full end-to-end digital imaging solution from input to output with the use of co-existing projectors, including WUX5800Z and WUX6600Z. For a museum with multiple galleries, the immersive use of projectors is invaluable for seeing the bigger picture of nature at large. It’s all about context. More specifically, for Ashwin, it’s all about the bones.

“What a lot of museums do is show still pictures or static artwork of dinosaurs. But what’s more interesting for our visitors is to see the way they move, which gives a whole new dimension to how you perceive these creatures. When you see a T-rex skeleton and then you see a projection of the dinosaur move, you can compare the bone structure, the muscle formation and see how the entire anatomy functions. The projections bind it all together in the imagination,” Ashwin concludes.

If skeletons are the blueprint, then Canon helps paint the whole moving picture.

Inside the museum’s gallery titled ‘Death’ lies another impressive application. “The ‘circle projection’ is an immersive 360 experience, where we use five projectors stacked at a very short range to cover the entire cylinder. How sharp and diagonal you can point them without losing picture quality is amazing,” comments Ashwin. “It’s a one-of-a-kind solution, only possible with the Canon projectors.”



## CASE STUDY SCHEMATIC: NATURALIS PTZ



**Canon**

## The Canon Solution

### CR-N300 PTZ Cameras

- 1/2.3 Type CMOS Sensor
- 4K UHD Image Quality
- 20x Optical Zoom with Image Stabilisation
- Hybrid Auto Focus
- Multiple in-built protocols such as RTMP and NDI|HX
- HDMI, SDI, IP and USB-C Connectivity

### XEED Projectors

- WUX5800Z (5800 Lumens), WUX6600Z (6600 Lumens)
- 1920 x 1200 (WUXGA) Resolution
- Laser Light Source
- LCOS Display Technology
- Motorised Lens Shift
- HDbaseT Connectivity

### RS-SL06UW Lens:

- 0.54:1 Throw Ratio
- -15% to + 75% V-Lens Shift
- Ultra-high image quality



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