



12

STREAMPUNK
Wild, wild life

Words by **Chelsea Fearnley**

A STALK ON THE WILD SIDE

Big budget nature documentaries are always a hit, but the critters in our own back yard can make just as compelling viewing



Watching live video streams of wildlife can provide netizens with yet another form of escapism, akin to the cat or dog memes saturating the web.

But these animal-centric live streams didn't all start out as a public preoccupation. A lot of them are the outgrowth of remote observation techniques used by scientists and conservationists for centuries, with new technological advancements that allow them to be broadcast worldwide.

The RSPB (Royal Society for the Protection of Birds) is a conservation charity that has been observing nature, specifically birds, for 130 years. From its humble beginnings in Victorian England to the far-reaching organisation it is today, the RSPB has developed an eagle-eye for watching nature without disturbing it.

Using IP cameras, deployed by the video production service Carnyx Wild, the RSPB can tune in to designated RSPB reserves (areas of protected and managed land) to study the behavioural and migratory patterns of the birds that reside there. The cameras also provide insight into which of their conservationist efforts have been successful, and build a knowledge base for future management techniques.

UNRELIABLE RAPTORS

Carnyx Wild is co-owned by Peter Dobson and Dr. Manuel Hinge, who have been producing natural history programmes and installing wildlife camera systems since the 1990s.

"Setting up live cameras in bird nests can take a great deal of patience and

preparation," says Peter. "We must first monitor various parts of a reserve until we find a nest that is favoured by the male. Some raptors – like the resident peregrine falcons at Chichester Cathedral – return to the same nest each year, but this is not the case for many other breeds."

To find a nest, Peter's team arrive at a reserve before dawn, where they sit quietly by the base of a tree, waiting to see which birds are around and where they fly to. They repeat this on subsequent days, adjusting their location and positioning, until they finally find a nest.

"However, there may be several hills and many trees between the nest and civilisation, making it a difficult spot for transmitting live video," says Peter.

OVER THE HILL AND FAR AWAY

Combating the tricky terrain, Carnyx Wild use Ubiquiti Networks to transfer footage in HD from nest to screen.

"Their long-distance Wi-Fi transmitters are extremely compact, reliable and very cost-effective," Peter says. "We initially used HD-SDI, but long-range wireless ➔



WILD, LIVE
 Creating a great nature experience accessible to all takes a mix of tech know-how – and good, old fashioned patience



transmission or fibre optic of HD-SDI is expensive. IP is the way forward: HD with low bandwidth over long distances."

Installing the long-distance Wi-Fi requires a certain amount of acrobatics. Peter and his team must climb the tallest tree in a given area, install a connecting panel and then scout out another similar-sized tree several kilometres away. The process of climbing, installing and scouting is repeated until they have leap-frogged all obstructions. "What can't be seen, can't be tampered with!" Peter adds.

Wherever possible, Carnyx Wild try to use conventional broadband packages.

A LOW PROFILE While the quality of the tech involved is important, the health and wellbeing of the wildlife always comes first



THE END RESULT IS LIVE STREAM AND ARCHIVE RECORDING IN EXACTLY THE RIGHT FORMAT

"The challenge is to get acceptable and reliable live video when working with an upload speed that can be as low as 300Kbps". This, as Peter explains, "is difficult when you're working with wildlife nests that are, by definition, located in the wild: the last place on earth that gets useable internet."

To fill the gap, Carnyx Wild uses TooWay satellite. TooWay is provided by Eutelsat and offers an alternative to poor quality ADSL to rural areas.

"Their unlimited bandwidth package enables uninterrupted streaming of a single source, 24 hours a day, to our streaming servers. The upload speed is normally 1.5Mbps to 2.5Mbps, so it's just enough to do some basic HD."

The live video is then processed and distributed via Carnyx Wild's streaming servers to human viewers, for which the company uses the Wowza Streaming Engine on its own dedicated server.

In times of high traffic around a particular popular subject, Carnyx Wild will bounce the live video across to its cloud servers.

The footage is processed using vMix or OBS, although most of the time Carnyx Wild programme their own encoding via command line and ffmpeg.

"It allows much more control over the encoding and converting process," says Peter. "The end result is live stream and archive recording in exactly the right format for our and the RSPB's needs."

RELIABLE TECHNOLOGY

Once the live cameras are set up and connected to civilisation, Peter and his team will not be able to return to the nests until after the chicks have fledged, so these cameras need to be as reliable as possible.

"The welfare of these birds is paramount, so it's a case of do the best you can and then keep your fingers firmly crossed," says Peter. "The cameras are powered [▶](#)



AS THIS IS BEING WRITTEN, OSPREYS AT LOCH GARTEN ARE BEING OGLED BY 75,000 VIEWERS

using either solar energy or methanol fuel cells, as this allows them to be standalone or remote for several months unattended.”

Ideally, the cameras are fitted to face north, as this direction provides a view with the most sunlight falling on the subject; they are also camouflaged to blend in with the surroundings. The live video streams are monitored daily and many of the cameras include remote access software running, so admin changes can be made whenever required.

FAME AND FUTURE

The live video streams are broadcast to the RSPB webpage, RSPB social media channels and Carnyx.tv, and the videos inevitably receive tens of thousands of comments, likes and reactions. As this is being written, ospreys at the Loch Garton reserve in Scotland are being ogled by 75,000 viewers.

The RSPB also hosts forums on its site for visitors to comment, discuss and share screengrabs of the live video streams with others. “These forums have opened up

a dialogue with the wider public from all across the world,” says the RSPB.

Carnyx Wild are constantly monitoring new technology to see how it might help and what opportunities it could open. They’re currently working on adapting and trialling the use of VR.

“Imagine being able to put on a VR headset and be right in the middle of an osprey feeding its chicks,” says Peter.

The RSPB hopes to deploy more cameras in its reserves and broadcast the footage to more platforms in the future. The organisation is also working with Microsoft AI to develop a camera that can identify species of birds.

New camera and networking technologies have drastically upgraded what were once just simple camera traps, enabling live streaming of HD and 4K video from even the most remote locations. Scientists and organisations like the RSPB are using these to draw attention to research and conservation efforts, while fulfilling the human need to get up close and personal with animals in the wild.

FROM YOUR GARDEN TO THE WEB

BadgerTube! Birds Gone Wild! Breaking Newts! OK, maybe we’re not the best at suggesting a name for your wildlife channel, but we can tell you how to create one.

With affordable and readily available technology, setting up a camera trap and creating your own wildlife channel is easy. The tricky part is getting the critters in your backyard to play their roles.

Although commonly used for surveillance, IP cameras are the easiest way to live stream content. Axis is a leader in IP cameras and offers a range of solutions to suit everyone’s needs. Depending on your budget, you can invest in 4K, 360-degree and microphone-enabled cameras.

When recording wildlife, it’s recommended by the RSPB that the equipment you’re using blends in with the surroundings. For this, they recommend fitting the camera into the crook of a tree or inside a bush. You can also fit a nest box up with an internal camera, or purchase one with a camera already installed.

Now you need your connection to the internet. IP cameras work over Wi-Fi, so your household broadband may do. But if your channel becomes a hit, you may want to invest in a content delivery network to enhance the video’s streaming potential.

At this point, you should be able to view your live stream by searching your camera’s IP address, but to stream to other platforms, you’ll need an encoder. An encoder takes the data from your camera and converts it into a format that will allow you to embed and stream the content to your own website or other platforms.

We recommend doing a bit of homework to find an encoder that’s compatible with your streaming platform, that offers the best option for your shooting and editing needs, and has the right pricing plan for you.

Open Broadcasting Studio (OBS) is an open source software encoder which enables simple live streaming to most major platforms. It’s a great starting tool for those new to livestreaming and is available for Windows, Mac and Linux.

OBS Studio features real-time video/audio capturing and mixing from multiple sources, including window captures, images, text, browser windows, webcams and capture cards. The software can record multiple audio tracks while streaming or recording, and includes an audio mixer with per-source filters such as noise gate, noise suppression and gain. It also supports Virtual Studio Technology plug-ins.