

# Winged Technology

## Applying technology to a show about birds at San Diego Zoo

By: Sharon Stancavage

Live shows starring animal have long been a staple of zoos and other themed-entertainment venues; until recently, however, they have largely been immune to technical innovation. Recently, the state of the art for bird shows has been taken up a notch, thanks to the work of Natural Encounters Inc., of Winter Haven, Florida. “All of our shows have a conservation/education theme, but we deliver the message through entertaining natural behaviors of charismatic animals,” explains Steve Martin, the company’s president. The latest example is *SOAR: A Symphony in Flight*, now at the San Diego Zoo.

Several years ago, Martin met Jeremy Railton, the scenic designer and principal of Entertainment Design Inc., who also happens to be an amateur ornithologist. The pair worked together on a project for the Singapore Zoo, which led to discussions about the next generation of bird shows. “I had seen all these wonderful shows, but they never looked beautiful to me,” Railton explains; instead, he imagined something that went beyond a trainer with a bird on her arm, reciting facts. “Part of the dream was to be able to do a production that didn’t rely just on the



Lighting many different types of birds requires a restrained color palette.

beauty of the birds, but combined the birds, music, and lighting, delivering a total package.”

Natural Encounters productions don’t use cages, and are free of kitschy concepts such as parrots dressed in tiny costumes. “At Natural Encounters they breed, hatch, and raise their own birds, and train them to do things they do in the wild,” explains Railton. The shows have a message as well. “Our goals are to engage, inspire, and empower our audience members toward conservation action,” says Martin. “We engage people through entertaining routines, close encounters, and memorable experiences with amazing animals. We inspire people through carefully designed dialog that is uplifting,

instead of the depressing messages we so often hear associated with environmental problems. We empower people by giving them the tools to make a difference.”

When the opportunity to create a new show at the San Diego Zoo came up, the pair went to work, pushing the envelope. Their ideas included a new, multi-level set designed by Railton, as well as theatrical lighting and a surround-sound speaker system. “In the beginning, I had no idea what was possible, or how much a lighting package might cost,” admits Martin.

The San Diego Zoo presentation is actually two separate shows: a more traditional daytime show entitled *Take Flight—An Avian Adventure*, and an ambitious evening show, *Soar: A*

*Symphony in Flight*. The latter show represented a new world for Martin. “I have performed shows under lights before, both in outdoor amphitheatres and at indoor theatres,” he says. “However, the lights basically illuminated the stage and made some basic changes for various scenes.”

Both shows take place at the zoo’s Hunte Amphitheatre. “It’s a beautiful arena, surrounded by huge redwood trees,” Railton says, adding that his set had to meet numerous practical requirements. “They needed levels, they needed places to conceal trainers who release birds from hidden spots, and they needed places for the birds to land.” The set also needed to include an 8’ wide by 5’ high NEO 10 10mm LED wall for IMAG, provided by NeoVision, Inc. of San Diego.

The set had to be bird-friendly as well. “We made a steel underbody for the set—it has steel risers and stairs and so on—and then covered it all with wood,” Railton says. To fabricate the set, he turned to Chris Hyde, at Global Enterprises in Burbank. “I have worked with Chris for many, many years; he went out on a limb for me, and was able to deliver much more scenery than we really had money for,” Railton says.

### Bird-specific lighting

Railton, who acted as the show’s artistic director, approached the Los Angeles firm, Visual Terrain, about lighting the show. Lisa Passamonte Green, one of Visual Terrain’s lighting designers, was enthusiastic about the project. “Our first thoughts were, wow, this is going to be very fun and potentially very interesting,” she says. “We’ve done shows before with horses and other animals; however, we haven’t done a bird-specific show before,” she notes.

Passamonte Green, who also took the title of technical director, found that the production posed many challenges. “The fact that it was a free-flight show with predator birds in it was intriguing; it

also meant that we weren’t going to necessarily have a linear show,” she says. By definition, the latter are structured, are somewhat more predictable, and the performers are a bit more reliable. “While the story is linear, there might be a bird that doesn’t come out that night, or more birds than the night before, so you have to make sure that

latest technology—so she knew who to contact for a show control solution. “Through Visual Terrain, we hired Andy Gregory, the principal at ARC Software Solutions [located in Santa Clarita, California],” she says. “We created a custom interface for the trainers; it triggers the light console, the sound console, and



Top: One of Railton’s set sketches. Bottom: The final result.

the cueing is such that the person in the booth running the show—who is a bird trainer, not a lighting technician or sound person—can go to the right cue,” she explains.

Luckily, Passamonte Green has a background in theme park work—a sector that regularly utilizes personnel who aren’t necessarily up on the

the video switching, so they can do it all on a computer screen, and run all the different pieces,” Passamonte Green explains. The PC-based program features named scenes that can easily be skipped if necessary. The control software works in conjunction with the ETC Ion lighting console. “We do an

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interface between the Ion and the show control system via a MIDI adaptor,” she adds.

Integrating lighting into the show was a delicate task. Initially, Martin says, “I admit I was a bit nervous that the lighting effects would upstage the birds.” However, he adds, “the lighting and sound effects complimented the bird behavior by creating an environment that immersed the audience in the scenes—the birds remain the

PARs and Source Four Lekos, Philips Color Kinetics ColorBlasts, PAR 20 birdies, Barco High End Studio Colors, and Martin MAC 2000s.

The variety of gear—which also includes Elation Waterfalls—is due directly to the size of the venue. “The birds fly throughout the whole space, which is large, and they move along so many different planes—they can fly all the way to over 20-30’ above the audience’s heads,” Passamonte Green says.



An IMAG screen is built into the set design.

stars of the show, but the technology allows them to shine brighter.”

To light the show, Passamonte Green and her team had a variety of factors to consider. “We priced it many different ways, and we designed it a few different ways,” she says. “We really looked at whether we were going to use theatrical and intelligent fixtures, or architectural fixtures.”

Economically, the logical choice was rental gear, and so the project went out to bid. “We wanted to make sure Steve was getting the best value for his money,” says Passamonte Green. The winning bid went to Kinetic Lighting, of Los Angeles; the package included a variety of instruments, among them ETC Source Four

Overall, the lighting gear leans to the conventional side of the spectrum. “Because of the large space, I would say that the Source Fours and the PARs are workhorses, and, really, we are judicious about when we use the LEDs and the intelligent fixtures for doing the effects, and the patterns and the textures,” the designer says.

Stylistically, the lighting team treated the production as something entirely different from a simple animal show. “We took the approach that it was very much like lighting dance; you need to catch that movement,” explains Passamonte Green. “The challenge on this for Steven Young and Jen Goldstein, our two lead designers, was figuring out all the

acting zones and areas of flight path, where anyone would be on a given night, at a given time.”

In addition to keeping track of their avian cast, the team had to make sure that the lights themselves were bird-friendly. “We try really hard never to assault them,” says Passamonte Green. “And, when they fly to a perch, it’s typically backlit or sidelit, never flying right into the light. It’s for their safety.”

Color was also an important consideration. “I have to say that Steven and Jen worked really hard to pick colors that worked on the majority of the birds, and indeed, there are certain parts of the show where it’s OK to have saturated colors hit them,” the designer explains. During the “Fiesta” portion of the program, the birds are indeed bathed in color. However, as the production pro-



Working with the cast.

gressed, the lighting team cut back on some of the color because of simple visibility issues. To make it even more difficult, the birds range from a pure white red-tail hawk to an owl and a toucan. “It was challenging to pick colors that all of the birds would look well in, since we have to use the positions over and over for different birds,” she notes.

### Integrating the sound

The final technical element of the production is the Electro Voice PA, which was provided by CBC Technical Inc, of Murrieta, California. “Electro Voice had a solution from top to bottom--the entire system we put together is weatherproof, fully redundant, and it

monitors itself all the way down to the speaker components. If we have any bad drivers, it will alert us before they fail,” explains Chris Batchelor, sales manager at CBC.

For *Soar*, Batchelor turned to the EV Zx and Sx lines, specifically, 12 Zx 5-PIs for the main speakers, four Zx 1s as side fills, four Xsubs and eight SX 600 PIs, both used as delays. “We have the four Xsubs on stage, to give us a low end for the lighting and thunder and that stuff—there’s also a sub low-frequency driver in each of the Sx 600 surrounds, so basically there are sub-woofers all around as well,” he explains. It’s a flexible system. “Chris worked really hard to design a system to allow the bird calls to really move throughout the space—you would think that you were at

levels, and everything is totally redundant; if one fails the other takes over,” Batchelor says. As a result, the venue does run true surround sound, giving the audience the same sort of aural experience they have in a movie theatre.

Like the lighting, the audio system works with the show control system. “We preprogrammed all the audio for them—it’s all being driven by MIDI cues off the show control computer, so, on the audio side, it’s really simple for them. They really don’t have to do anything,” says Batchelor.

For the human talent in the production, NEI provided the microphones. “We use Shure transmitters with the wonderfully small Countryman E6 microphone—they’ve always performed great for us,” Martin confides.

The challenge for CBC came in the

scene, the mood shifts; loggers and chain saws are heard in the distance, and then a virtual fire breaks out courtesy of the flicker of the ColorBlasts and the automated fixtures, with patterns from the Elation Waterfalls layered on top. “As the fire begins to engulf the stage, an Augur Buzzard flies from underneath the LED screen and exits at the top of the theatre. The LED screen lights with the image of a forest fire just as the buzzard leaves the area under the screen. As the fire travels to stage left and beyond, the 25’ tall tree at stage left is lit with fire,” explains Martin.

As the fire spreads, the tree dramatically falls to the ground, accented by the thunderous sound of the fall of a real redwood. “The most difficult thing—which turned out really great—was the tree that falls,” says Railton. “It was done quite simply by mimicking the same mechanism that a parking lot arm uses—the base of the tree was counterweighted, so when you tilt it, it just teeters on its balance point. The tree tips over and falls comfortably, and then rises up.”

After the tree falls, the weather apparently changes, and audio is brought into the picture. “There are the sounds of rain and thunder, the night quiets down, and you see owls flying in the night,” notes Railton. As dawn breaks, a macaw returns to the tree, searching for its nesting hole. “A trainer appears on stage and the macaw flies over to land on her arm,” says Martin. “She then explains that humans are the only species on the planet with the power to repair the damage and restore the balance, and the tree rises on its own.”

In the end, the production is more than Martin imagined. “The addition of the incredible lighting effects and the 7.1 surround sound exceeded my expectations, and, in fact, surpassed my initial visions,” he confides.

*Soar* can be viewed at the San Diego Zoo’s Hunte Arena until January 3. A new night show will preview June 26, and run through September 6. 📺

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—Railton

one of the finest amphitheatres anywhere in the world,” remarks Passamonte Green.

The system is also carefully integrated into the venue. “We tried to keep the outdoor, natural look to everything. Sure, there are speakers and lights for the event, but that’s not what you’re looking at,” Batchelor explains. The speakers are indeed in the trees, but are not mounted to them: “There are poles in the trees, holding them up all the way around the audience.”

For control, the system uses two PCs running Stage Research’s SFX software with M-Audio Delta 1010 cards. “We programmed the computer to send a signal to any speaker we wanted to, we preset all the volume

in advance, and we have a backup in case of time. “They needed several weeks to train the birds, so doing a massive system from design to completely installed, tweaked, and ready to go in two months was a big challenge,” Batchelor admits. There was also the inherent challenge of working outdoors to consider as well: “It’s very hard outside because the property that you’re working with is totally different—there are no ceilings, no walls, no boundaries—so that sound just goes wherever. Controlling it and making it sound the way you want it to sound can be a challenge.”

One of the last scenes of the show, entitled “Devastation” is where Railton’s set, Passamonte Green’s lighting, and Batchelor’s audio all shine. After the upbeat and celebratory “Fiesta”