

Up, Up and Away

Fourteen French cinematographers take to the air to make *Winged Migration*, a documentary that offers unprecedented views of migratory birds.

by Patricia Thomson

Unit photography by Mathieu Simonet

“It was like flying on a magic carpet,” says French cinematographer Dominique Gentil, AFC, still awestruck by the experience of soaring through the air with birds. The

project was the 35mm feature documentary *Winged Migration*, and the magic carpet was a modified Ultralight Motorized aircraft (ULM), essentially “a seat with wings,” according to Jacques Perrin, the film’s

director and producer. Gentil was one of 14 cinematographers who flew on ULMs, balloons and motorized parachutes; maneuvered camera-wielding robots by remote control; staked out subjects in



camouflaged hideouts; hauled collapsible cranes through swamps; and hung onto camera cars, motor boats and even prosaic dollies while filming 70 species of migratory birds.

The resulting footage has amazed even veteran bird-watchers like E.J. McAdams, executive director of the New York City Audubon Society. “I’ve never gotten to watch a bird fly from on top of the bird,” he says. Nor has McAdams flown in formation beside one, close enough to stroke its wing. “Perrin is far ahead of anyone else in that kind of work,” the veteran birder says. “You could see the musculature in the birds’ backs and how they hold their feet when flying, and you could watch them landing. For the mechanics of flying, the film was incredible.” So incredible, in fact, that the producers felt it necessary to include a credit line that states “no special effects were used.”

Instead, ingenuity, patience

and serendipity produced these results, helped by an army of 450 enablers, including 17 pilots, legions of ornithologists, animal advisers and guides, plus the film’s production personnel. Because migratory birds can cover well over 2,000 miles, crossing continents and oceans, the camera teams were running all over the globe. Production took place in

40 countries over seven continents and lasted four years. By Perrin’s estimate, total film footage topped 300 miles.

Not surprisingly, the logistics were daunting. Executive producer Jean de Tregomain recalls that one e-mail he sent during production “was a summary of a normal day’s difficulties — the future shoot in



To make the Academy Award-nominated documentary *Winged Migration*, a team of French filmmakers spent four years tracking 70 species of migratory birds. Below: An unmodified Ultra Light Motorized aircraft (ULM) is taken for a test run during prep. The team later modified the ULMs to seat the passenger in front of the pilot.

Photos courtesy of Sony Pictures Classics and Galatee Films.

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The birds travel over and under some of America's best-known landmarks, both natural and manmade. Well ahead of principal photography, the filmmakers "imprinted" more than 1,000 eggs in Normandy so that the "hero" birds would be comfortable with the sounds of motors and human voices.



Vietnam, transport problems in Libya, unusually heavy rains in Kenya, a return to the Falkland Islands for an essential shot, a shoot on the Rhone that had finished successfully with sublime lighting, technical research to film over the forest canopy in Guyana, and spring in France, which was arriving too soon and upsetting all the shooting scheduled before the first leaves came out."

When Perrin began developing *Winged Migration*, he had no idea whether it would work. "I began



with no assurance — I was sure, but I wasn't sure, but I was sure," he waffles with a smile. Perrin had created a cult hit with *Microcosmos* (see AC Jan. '97), his close-up examination of the insect world, but precedents for the kind of bird

footage he envisioned were as rare as hen's teeth. The first man to successfully fly with birds was Bill Lishman, a Canadian ULM pilot who in the 1980s had hatched some eggs and trained 15 goslings to follow his motorcycle, and then an aircraft.

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The birds featured in the film include pelicans, geese, eagles, cranes, swans, ducks and macaws.



Lishman used the principles of imprinting first explored by Austrian scientist Konrad Lorenz. Imprinting is a kind of surrogate parenthood, whereby a newly hatched chick bonds with whatever cooing, nurturing creature first appears before it. One day Lishman went up in the air with a friend who brought a camera. They sent the footage to Perrin, who was then host of a French television show. "He made not a documentary, but a document," Perrin says. But it was enough to plant the seed.

In 1996, Columbia Pictures made a film loosely based on Lishman's experience, *Fly Away Home* (AC June '97), but this involved only a dozen Canadian geese. Perrin envisioned something much grander: a film that would explore the mysteries of flight while following the four main axes of migration. The film would tail snow geese, sandhill cranes and Canadian geese as they flew from North America to southern climates;

Eurasian cranes, white storks, swallows and curlews as they aimed for Africa; Siberian cranes and bar-headed geese en route to India; and Southeast Asian knots as they headed to Australia. It would fly with birds over famous settings — the Grand Canyon, Mont Saint Michel, the Twin Towers — and past magnificent landscapes as varied as the Sahara and the Arctic. Structurally, the film would follow the cycle of the year. It would include intimate scenes of birds feeding, nesting, courting mates and coddling their young. It would show the life-threatening hazards they face, including injury, exhaustion, avalanches, industrial pollution and hunters (human as well as avian). To do all this, the film would need a storyboard, a guide drafted in close consultation with a professor from France's Museum of Natural History. "That's why *Winged Migration* is not completely a documentary," notes Gentil. "We wanted to provoke some situations." And

finally, it would be filmed in 35mm with a minimum of telephoto lenses. The object was to get as close as possible to these familiar yet mysterious creatures.

When he began assembling his cinematography team, Perrin immediately tapped Thierry Machado, who won the César Award for his cinematography on *Microcosmos* and also shot Perrin's primate documentary *The Monkey People*. "He's the first cinematographer I engaged because he's very good, and he's also physically in good condition," says Perrin. "He's afraid of nothing." That was critical, because Machado would be the cinematographer doing test runs in the ULM and other vehicles to figure out filming techniques. It took about a year to get things right. "Our technical problems in the first year were nothing compared to learning to fly with the birds," says Machado. "The challenge was to be able to fly at the same speed as the birds, remaining in the center of the

formation. Our goal was to give the impression of being part of the flight, not just spectators."

Machado did some tests comparing anamorphic and spherical lenses, and he and Perrin finally settled on the standard 1:85:1 format. "It seemed more interesting for shooting the aerial views," he remarks. Next, the technical parameters were laid out for all involved. Because the 14 cinematographers were shooting separately, "the main problem was having a homogeneous image," says Gentil. "So we tried to have some simple rules: one kind of lens for everybody, one kind of zoom and only Kodak [EXR 50D 5245 and Vision 250D 5246] film stock." There were no filters, and movie lights were rarely employed. "We had to shoot all over the world and we needed the equipment to be very versatile, so we had to use what we could find everywhere," says Gentil. All of the cinematographers used an Aaton 35-III or an Arri 35-3 and Zeiss lenses, with an emphasis on wide-angle primes or zooms in the 25-50mm range. (Perrin always wanted to show the birds' relationship to their environments.)

There were two other guiding principles in terms of style: Perrin wanted constant camera movement, and he wanted the camera to be as close to its subjects as possible. "When the camera is in the air, naturally there is always movement," he says, "but when it's on the ground I also wanted movement. I wanted the sensation of life, and if the camera is just fixed we don't have that sensation." Because wide-angle lenses were prioritized, the cinematographers' proximity had to be physical,

and that created some of the shoot's greatest challenges — in the air and on the ground.

Perrin began with the aerial logistics. While the crew was being assembled, the cast was being hatched and imprinted. Birds don't normally fly beside aircraft, nor can they be trained like circus animals. So Perrin undertook what would become the largest imprinting project ever. More than 1,000 eggs —



representing 25 species — were raised by ornithologists and students in Normandy, where Perrin also rented an airfield. During incubation and early life, the chicks were exposed to the sound of motors and the human voice, and they were then trained to follow the pilot, first on foot, then in the air. These birds would be the main actors, the "heroes" of flight. The rest of the footage would feature thousands of wild birds filmed in their natural environments.

Seventy percent of the aerial footage was shot from ULMs, which were tiny enough to follow birds under bridges and down narrow canyons, and light enough not to fall out of the sky when traveling at the birds' speed. The ULMs were modified to position the extra passenger in front of the pilot rather than behind,

placing him on a seat at the end of a 5'-long metal plank. "If you saw this machine, you wouldn't put your best friend on it," Perrin says, only half-jokingly. But it offered cinematographers an unobstructed 180-degree view.

The Ultralight is so light that it's easily bounced around by turbulence. The production team worked with a French engineer to devise a stabilizer similar to a Wescam device, "but it never functioned well," says Perrin. "After one year, we decided we just needed good cameramen with strong arms."

Simplification became the filmmakers' mantra. "At the beginning, we didn't know how to do things, so we were looking to technology for maximum help," says Gentil. "We worked with electronic people to make a light stabilizer head, and then we built a very sophisticated traveling car with mini-scaffolding to put the camera in multiple places. We tried to adapt the Steadicam on that car, but in the end we removed all of that and used an ordinary pick-up, attached the camera and operator to be safe, and then did the shot very simply. We understood little by little that the technology was already there, and the best approach was to be as close as possible to the birds." According to Machado, the Steadicam worked, "but the sensation of flight was not there." In Gentil's view, hands-on contact with the camera added to the imagery's emotional impact. "When I filmed the birds flying, it was very emotional because I didn't react through a joystick and wheels to drive my camera, but I used my

The birds crossed massive expanses on all seven continents.

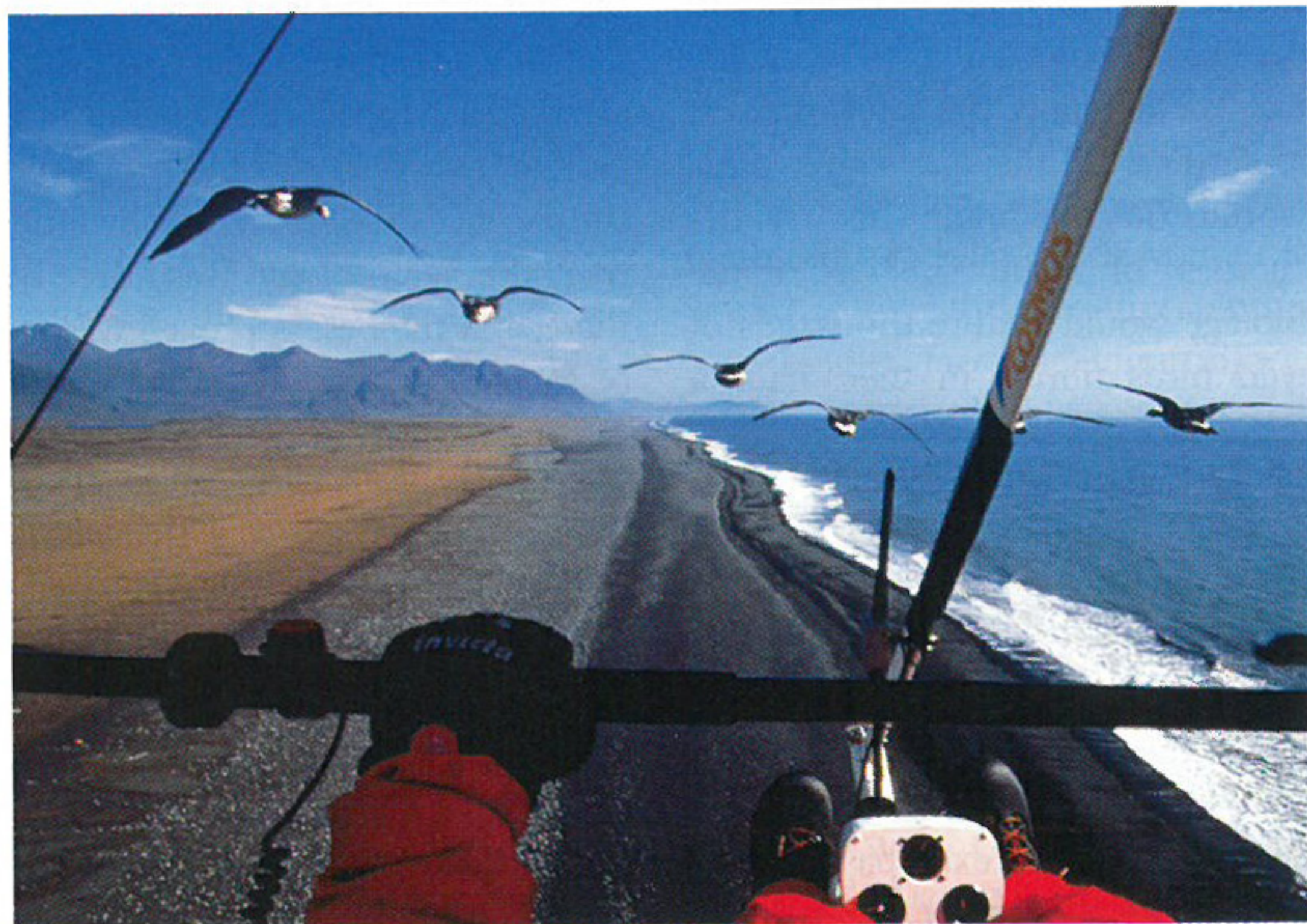
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Above: The Eiffel Tower gets a fly-by. **Below:** The view from a ULM, which gave the cinematographers a field of view of almost 360 degrees. Roughly 70 percent of the film was shot from ULMs.

body. It was more of a conversation.”

The cinematographers flew in other modified aircraft as well, depending on flight patterns and local conditions. The second most common vehicle used was the parachute, a quiet transport system that could carry two people. The parachutist was rigged with a small motor on his leg to drive the chute sideways. This was handy for filming birds that ride thermal air currents, such as eagles and storks. On occasion, the cameramen also used balloons.



Nevertheless, it was the rare day when all elements fell into place. Gentil ticks off the challenges: “We had to deal with the birds — would they fly or not? We never forced them. We had a real ethic about that. We had to organize the flight with the pilot, which depended on the weather conditions. After that, we had to bring the birds to the site we wanted filmed: Monument Valley, Mont Saint Michel, the Eiffel Tower, all those places. We had a precise script and we had to fly over a precise place. And we needed to

have good light conditions and air stability.” (Fortunately, birds prefer to fly in the cool morning air and at magic hour.) “There were so many conditions, to meet all of them [at once] was very rare. Sometimes we spent three months getting one shot.”

All of the cinematographers who flew with the birds — Sylvie Carcedo, Luc Drion, Laurent Fleutot, Bernard Lutic, Stephane Martin, Fabrice Moindrot, plus Machado and Gentil — came away profoundly moved by the experience. Gentil recalls flying so close he had to push the birds away. “They were sometimes a foot away — the wing was on the lens.” When flying under the best conditions, he says, “I cried sometimes, it was so overwhelming.” He remembers the day he flew over Mont Saint Michel, capturing the famed island city far below the barnacle-geese formation. “It was the day the birds climbed 2,500 to 3,000 feet, the highest we’d ever flown. The pilot, the birds and I were alone in the sky, and I was getting something very, very strong for the film — and for us personally.”

For Machado, the first time it all came together was in Iceland. That day the wind had finally calmed down, and he was preparing to fly alongside a huge glacier. Takeoff was perfect, the birds fell into formation around the aircraft, and they gradually found an altitude at which the birds were confident. “As if by magic, I put the camera on my shoulder and the birds decided to cooperate. Far below, the crevasses sped by. All of my good resolutions were forgotten, and we were now flying over the glacier, right in the middle,” a much more dangerous flight path. But Machado was elated. “For the first time after a year and a half, we felt that the camera became a bird.” That footage produced the first compliments from the Paris office, and it “established the tone of the movie for the aerial views,” says Machado.

Filming the wild birds entailed a different set of challenges. In addition to Machado, those cinematographers were Michael Benjamin, Laurent Charbonnier, Philippe Garguil, Ernst Sasse, Michael Terrasse and Thierry Thomas. Some had extensive experience shooting nature films; Charbonnier, an early hire, had shot more than 30 nature documentaries. All used *Winged Migration*'s standard equipment package, and Charbonnier brought along an Angenieux 25-250mm zoom and a Canon 150-600mm zoom.

But some of the most important accoutrements were more likely to be found in a bird sanctuary than a camera store. “Perrin’s aversion to long lenses was a problem for birds that were difficult to approach,” says Charbonnier, “so we had to be clever and create some blinds. We then had a long wait in order to get our actors at a good distance.” These blinds — places of concealment designed for watching birds or animals — were constructed out of canvas and camouflaged with leaves, branches or other materials picked up from the spot.

When Charbonnier was in Nebraska on a feeding ground of 70,000 Canadian geese, Perrin wanted a shot of the birds waking up very early in the morning. Typically, the geese ate in the fields during the day and flew back to the river to spend the night. “If the team arrived at night with all their material, we would have disturbed 70,000 geese,” says Charbonnier. “The only solution was come to the river while the geese were away eating and install a blind on a sunny spot in the middle of their arrival area.” While the birds were gone, the filmmakers dug a large hole in the sand and camouflaged a blind, which was oriented toward the east for their preferred camera angle. Charbonnier took his position at 3

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One of the filmmakers' innovations was this robot camera, which allowed them to capture some of their more aggressive subjects. In locations where the device was camouflaged, "the birds sometimes came up and looked right into the lens," says director Jacques Perrin.

p.m. and waited. "I spent the night in the blind, which was a little damp — we napped until the dampness won. The next morning there was fantastic light, and I was in the middle of 70,000 geese, the closest less than 11

feet from the lens! All the geese left to eat at 9:30, and I waited until they were gone before calling my assistant to come rescue me. The scene was done in two hours, but it entailed location scouting, preparation, a night of dampness and patience. It's a very good example of our [method] for many sequences in the film."

Other equipment ranged from the crude to the high-tech. To follow sea birds as they plummeted to the Arctic ocean from their nests high on a cliff, Machado attached his camera to a kind of bungee cord, using 200 meters of elastic and wood stabilizing wings to keep the camera from spinning when it hit bottom. At the other end of the scale was a three-wheeled robot "like the moon machine," says Perrin. As Charbonnier relates, "I asked Perrin and his director of production to build a robot in August 1999, after we shot some

waders in Germany who were very aggressive." The birds followed the tides, making a long stakeout in a blind unfeasible. When Charbonnier shot the waders in Mauritania a few months later, he came with the robot. It held an Aaton on an external arm for shooting the birds, and a video camera to view its path. The camera operator stood about 500 meters away with a monitor, guiding the robot and adjusting the zoom and iris by remote control. Often the robot was camouflaged. "The birds sometimes came up and looked right into the lens," says Perrin. "Some of the shots were very amusing." Charbonnier was pleased as well. "In the three weeks spent in the National Park of Banc d'Arguin, [Philippe Garguil and I] were able to shoot spectacular footage of thousands of birds passing three meters from our lens."

The filmmakers also used a lightweight crane that could be carried by hand and assembled in six minutes, as well as a variety of floating platforms. "We spent half of the film in water," says Gentil. "Birds never go to easy places; they're always far from roads, or in wetlands or mud."

But no one complained — at least not too much. "These are movies that one isn't always happy to do because they are so long and laborious," says Machado. "But one is always proud to have shot them." (In fact, some of the *Winged Migration* cinematographers have already reteamed with Perrin for an Imax film on bird flight, which is being created for the French theme park Futuroscope.)

Making *Winged Migration* gave many of the cinematographers a new respect for their feathered

friends. "It changed my life," says Gentil with a laugh. "I'm now very aware of the cry of the bird. I've seen birds migrating over Paris, looking for a stop for the night, and I never used to notice that. Now in my little garden in Paris, I feed them during the winter. I finished the film two years ago, but it was a very intense experience. It was close to the human dream, to fly with birds." ■

TECHNICAL SPECS

1.85:1

Aaton 35-III, Arri 35-3
Zeiss, Angenieux and
Canon lenses

Kodak EXR 50D 5245,
Vision 250D 5246

Printed on Kodak Vision
Premier 2393