THE WORLD *of birds*

WANTED – ALIVE

Ivory-bill update

Painting by Peter Hayman of an Ivory-billed Woodpecker, from BirdLife's Rare Bird Club collection.

Towards the end of April 2005, the ornithological world was stunned by the announcement that the Ivory-billed Woodpecker had been rediscovered in eastern Arkansas, USA. An awe-inspiring bird with a wingspan of more than 75 centimetres, the Ivory-bill was believed to have been extinct in North America since the 1940s. News of the rediscovery galvanised birders and conservationists worldwide, and triggered a massive species recovery programme with funding of more than $10-million from the US Government.

Reaction from the scientific community, however, was more sceptical. The evidence presented by the team responsible for the rediscovery consisted of a very blurred video recording of a large woodpecker. Several prominent ornithologists disputed the identification of the bird in the video as an Ivory-bill. Among them was David Sibley, author and illustrator of a recent field guide to North American birds, who believes that the bird in the video may well be a Pileated Woodpecker, a common species in the area.

While ornithologists dissect the Arkansas evidence, interesting developments are taking place elsewhere. Following a sighting in Florida of a bird that they identified as an Ivory-bill, Geoff Hill and his colleagues mounted an intensive year-long search. They reported seeing Ivory-bills 14 times, and recorded just over 300 instances of calls that match written descriptions of Ivory-bill vocalisations. The Hill team also found other intriguing signs, including a number of fresh cavities that are substantially larger than those excavated by Pileated Woodpeckers, but fall within the range reported for Ivory-bills.

Do Ivory-billed Woodpeckers still exist in North America? The answer seems to be 'probably'. For Ivory-bill search teams, the Holy Grail is a photograph of sufficient quality to confirm the bird's identity beyond all doubt. Until such an image is obtained, or the DNA from a feather found in the field matches DNA extracted from museum specimens, ornithologists, conservationists and birders wait with bated breath.

ANDREW McKECHNIE

OUT OF THIS WORLD

How biotelemetry reveals avian secrets

One might imagine, perhaps, that the average ornithologist spends most of his time observing birds through a well-used pair of binoculars or poring over endless collections of specimens in museum basements. In reality, ornithology has become a distinctly high-tech science, with a multitude of technological advances profoundly altering the ways in which the secret lives of birds are revealed. For instance, computers with processing speeds and storage capacities undreamed of a decade ago are used in research facilities around the world to develop complex mathematical models of bird population fluctuations and increasingly realistic predictions of the future effects of climate change (see *Africa – Birds & Birding*, 10(5): 52–60).

Some of the most impressive applications of new technologies to ornithological research have occurred in the field of biotelemetry, the remote monitoring of birds using radio-transmitters and/or data loggers. A decade or two ago, the size and weight of electronic circuits and batteries made biotelemetry a feasible proposition only when working on relatively large species. Since then, these devices have become progressively smaller and more powerful, with the smallest transmitters currently available weighing less than half a gram. These miniature transmitters can be attached to the smallest birds, and even to large insects such as locusts and moths. Advances in biotelemetry have also involved the ways in which information is transmitted to researchers. Increasingly, radio-transmitters send signals not to receivers on the ground, but to orbiting satellites. Satellite transmitters allow researchers to accurately track the movements of species that regularly move long distances, such as penguins, albatrosses and flamingos (see *Africa – Birds & Birding*, 9(3): 14–15).

Besides revealing birds' exact locations, radio-transmitters and data loggers can also be used to monitor aspects of physiology and behaviour that would otherwise be impossible to study. For instance, biotelemetry has been responsible for several fundamental advances in our understanding of avian flight. By attaching devices that transmit and/or record information on heart rate, wingbeat and breathing frequency to birds as diverse as Barnacle Geese *Branta leucopsis* on the Arctic tundra and Spotted Antbirds *Hylophylax naivoides* in Panamanian rainforests, ornithologists have been able to conduct detailed studies of the physiology of flight. The physiological adaptations that allow penguins and other diving species to spend long periods of time underwater, often at remarkable depths, have similarly been uncovered largely through biotelemetry-based research.

PETER RYAN

The transmitter attached to this juvenile Shy Albatross will reveal much about how it spends its time at sea.

A fascinating example of how biotelemetry can reveal the ways in which birds cope with challenging environments is provided by recent work on ostriches in South Africa. For animals living in hot areas, a key requirement for survival is that their brains, which are highly sensitive to heat stress, are kept from overheating during hot weather and/or intense exercise. It is well known that several large mammals solve this problem by selectively cooling their brains and keeping brain temperature below that of the blood reaching it via the major arteries. A question that remained unanswered, however, was whether any birds had evolved a similar strategy. This mystery was solved when a group of South African and Australian researchers surgically implanted miniature data loggers that simultaneously recorded brain and blood temperatures in ostriches. Following the surgery, the ostriches were released back into the wild. A few weeks later, the birds were recaptured and the loggers removed. Ostriches, it would seem, do indeed keep cool heads – the data from the loggers revealed that they possess the capacity to selectively cool their brains, and that brain temperature is regulated within narrower limits than blood temperature.

Impressive as recent technological advances in biotelemetry may be, they fade in comparison to those that are on the horizon. Plans are being developed in North America that will involve NASA launching an additional radio telescope into orbit around the earth. Unlike other radio telescopes, pointed into the depths of space to detect and amplify weak signals from light-years away, this one will face downwards, *towards* the earth. Dubbed the Extra-terrestrial Biological Observatory, this radio telescope will be able to detect low-power signals from tiny transmitters anywhere in the world, and will completely revolutionise the ways in which ornithologists and other biologists keep tabs on their study animals. Watch this space...

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REFERENCE
Fuller, A., P.R. Kamerman, S.K. Maloney, G. Mitchell, and D. Mitchell. 2003. 'Variability in brain and arterial blood temperatures in free-ranging ostriches in their natural habitat.' *Journal of Experimental Biology* 206: 1171–1181.

Nine new Ramsar sites in Uganda

Uganda has added nine wetlands to the List of Wetlands of International Importance designated under the Ramsar Convention, bringing the national total to 11 sites covering a total of 354 803 hectares. 'This is a wonderful step for conservation in East Africa,' said Achilles Byaruhanga, Executive Director of NatureUganda, the BirdLife Partner in Uganda. 'The wetlands are home to spectacular wildlife like Shoebill, Papyrus Gonolek, sitatunga and black-and-white colobus monkeys, whose presence ensures a thriving tourism industry, which is vital to the local economy.'

The nine newly designated sites range from Uganda's largest tract of swamp forest to extensive papyrus beds and an impressive waterfall system. They are: Lake Bisina, Lake Mburo–Nakivali, Lake Nakuwa, Lake Opeta, Lutembe Bay, Mabamba Bay, Murchison Falls–Albert Delta, Nabajjuzi and Sango Bay–Musambwa Island–Kagera. Lake Opeta is home to Fox's Weaver, Uganda's only endemic bird species, whilst up to 1.5 million migrant White-winged Black Terns visit Lutembe Bay, close to Kampala, the nation's capital city.

Expedition to Tanzania's Uluguru Mountains raises awareness

The Wildlife Conservation Society of Tanzania (WCST, BirdLife in Tanzania) organised two birdwatching expeditions to the North Uluguru Mountains and Pugu Forests Important Bird Areas (IBAs), as part of the World Bird Festival celebrations. The Uluguru team was lucky to see Uluguru Bushshrike *Malaconotus alius*, a Critically Endangered species endemic to the Uluguru Mountains. 'These expeditions will help raise conservation awareness amongst local people in the Uluguru Mountains and Pugu Forests,' said Elias Mungaya, a participant on the Uluguru trip. 'Both places are suffering from human encroachment,' he added.

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