



Bermuda Audubon Society

NEWSLETTER Winter 2011

P.O. Box HM 1328, Hamilton HM FX Vol.22 No.3

www.audubon.bm

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Restoration of Seymour's Pond

The Bermuda Audubon Society celebrated the completion of a major restoration project at Seymour's Pond Nature Reserve in Southampton on 22 October. To mark the occasion, the Society's patron, His Excellency the Governor, Sir Richard Gozney planted a tree on the reserve. Seymour's Pond, located at the junction of Middle Road and South Road in Southampton, is highly visible to passing motorists. Backed by a densely wooded hillside and flanked by farmland, the slightly brackish pond provides a rich feeding ground for many species of migratory waterfowl including geese, ducks, herons and egrets. Moorhens, coots and pied-billed grebes have all been known to breed here.



The pond's effectiveness as a nature reserve had been compromised in recent years by the encroachment of invasive plants, which clogged the open water and reduced the pond's size by nearly half. Run-off from Middle Road and adjacent farmland had also caused the pond to become polluted, causing deformities in breeding toads. The restoration began in the Spring and was completed in October with a tree-planting session with 25 volunteers. It included reinstating a part of

the pond filled-in by garbage dumping in the 1930s, creating an islet near the north-east end of the pond for waterfowl to nest on and removing the encroaching Brazil pepper and sheathed paspalum grass that had reduced the open water area. Excavated material was used to recontour the pond edge, providing a barrier between the pond and the farmland to prevent chemical run-off into the wetland. Government played its part by installing a soak-away pit to absorb polluted run-off from the main road. A team from Works & Engineering completed the pit as an important contribution to ensuring the future health of the pond. Seymour's Pond was the first nature reserve established by the Bermuda Audubon Society by means of a public fund-raising drive in 1963. A second strip of land on the roadside was gifted to the society by the Masters estate in 1990, bringing its total size to 2.84 acres.

Photo: Victor Bell and his Skyline crew with Audubon President Andrew Dobson (left), Sir Richard Gozney and David Wingate (right).



SEYMOUR'S POND DONORS

We are grateful to the following donors to the Seymour's Pond Restoration Appeal:

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Hairy Woodpecker – New to Bermuda

Paul Watson

Paget Island birding weekend and my contribution to the weekend was a brief presentation on Bermuda's next new species: Pelagic or Terrestrial? What started as a few possible new species which we should have or could be recorded here soon blossomed into about 30 possible new species, or ones we may wish for! So it was with a great surprise that barely 3 weeks after we should have been on Paget Island, on Sunday 30th October 2011 Bermuda's latest addition to the species list was one which definitely slipped under the radar.

As has been the case before, finding many good birds while taking the family dog, Skipper for his daily walk around St George's golf course, I saw what I instantly recognized as the undulating flight of a woodpecker. Within seconds I saw that it was a Hairy Woodpecker (*Picoides villosus*), having seen many in the US and Canada. The bird was similar in size to a Great Kiskadee, and slightly larger than the more common Yellow-bellied Sapsucker which is a fairly common fall migrant and often overwinters. The pure white undersides excluded this species, and the obvious white upper back patch (between the wings) excludes all the other N. American woodpeckers with the exception of the smaller Downy Woodpecker. The woodpecker landed in a patch of casuarinas at Park Gates, and rushing to it I was able to get within 50 feet of the bird on the trunk of the tree, the size of the bird, and the large head and bill confirming that it was a Hairy Woodpecker. I called Andrew Dobson just to let him know I had a good bird, and commented that it was great that within the last year Bermuda had recorded 4 species of woodpecker (Hairy, Downy, Yellow-bellied Sapsucker and Northern Flicker), and Andrew very casually responds "But it's a new species; Hairy has never been recorded here". As I tried to get a better view to start some formal notes and try to see what sex the bird was it flew off back down the old #1 fairway and toward St George's Club. Despite much effort the bird was not relocated. Last fall's Downy Woodpeckers disappeared after a week or so and were not seen throughout the winter, until I discovered one again whilst walking the dog on St George's golf course in the spring. Keep checking. Who knows where it will turn up!

Confirmation of the Ten Day Fern

Alison Copeland



The Ten Day Fern or Leatherleaf Fern (*Rumohra adiantiformis*) is a native marsh fern which has become so rare in Bermuda that it was listed under the Protected Species Act 2003 (Protected Species Order 2007) as locally Critically Endangered. The last remaining individuals of this species were known to occur in Devonshire Marsh within the Winifred Gibbons and Firefly Reserves (both Audubon Society reserves), but their current status was unknown, as no one had checked on the ferns in a number of years and the area is becoming increasingly overgrown with invasive vegetation. On December 9th I set out with David Wingate to explore one area of the Winifred Gibbons Reserve where he knew the fern had previously grown. Within a few minutes of crossing the ditch into the marsh David discovered the first small specimen growing from a rotting stump and surrounded by other plants such as Cinnamon Fern, Para Grass and Morning Glory. We moved about 10 feet further into the marsh and discovered a second specimen growing out of a Bermuda Palmetto, a habit which David had previously observed with the Ten Day Fern. The second specimen was larger

than the first, and appeared to have mature spores on the underside of its fronds, indicating it was reproductive.



Photo (left) - Ten Day Fern growing from Bermuda Palmetto. The tree is surrounded by Cinnamon Fern and Southern Bracken. Photo (right) - Ferns reproduce from spores. These ones on the back of the Ten Day Fern appear to be immature. They will turn black when fully developed. All photos: Alison Copeland



Moving through the marsh was not easy, as the vegetation was very dense, there was poison ivy, and we were trying to avoid trampling the vegetation too much; so after discovering our second Ten Day Fern, we turned back. A small sample of the first fern was collected and deposited in the herbarium collection at the Natural History Museum at BAMZ, along with photos of both ferns.

This trip into the marsh was very informative, as we were able to confirm that at least two specimens remained at this location. We also got good images of the fern to aid in future identification and raising awareness. In the future Conservation Services would like to continue to search for this protected species and to collaborate with the Audubon Society to ensure that the remaining specimens continue to be well cared for. Anyone with an interest in the protected ferns is invited to read the Protected Species Recovery Plan for Ferns which can be found at:

http://bermudaconservation.squarespace.com/publications/species-recovery-plans/Fern%20Recovery%20Plan_s.pdf

The American Eel

Alison Copeland



The American Eel (*Anguilla rostrata*) is a wonderfully peculiar fish with a snake-like body which can reach 4 feet in length. This species is catadromous, meaning they spend most of their lives in fresh water and migrate to the sea to breed. They are common in Eastern North America where they live in rivers, lakes and ponds, feeding on invertebrates, fish, insects and carrion. The closely related European Eel (*Anguilla anguilla*) leads a similar life in European lakes and rivers. Both species of eel migrate into the Atlantic to breed in the Sargasso Sea.

In March 2011 Dr. Philippe Rouja and Mr. Robert Fisher explored Bartram's Pond in the Stokes Point Nature Reserve, where Mark Outerbridge had previously sighted what he thought were eels while surveying for Killifish. With good visibility in the pond, they were able to capture some great images of a large eel. In November, Philippe and I returned to Bartram's Pond with a video camera to capture video of an eel in the pond. When we arrived at the pond a medium sized eel could be clearly seen swimming along the surface. The pond was very cloudy on that day, and when we entered the water we were not able to locate the eel we had seen or any others, but this sighting does indicate that at least two eels have been in Bartram's Pond in the last 4 months. Conservation Services plans to continue to try to film the eels. The profile of this species has been raised recently due to ongoing activities to create a high seas conservation area in the Sargasso Sea, its primary spawning ground. Both the American and European Eel are also proposed for listing under the recently amended Protected Species Act. This listing will ensure their protection in Bermuda's waters. Photo - Eel in Bartram's Pond by Philippe Rouja

Devonshire Marsh

Andrew Dobson

The Bermuda Audubon Society found the decision by then Environment Minister Walter Roban to allow further development of Devonshire Marsh for industrial use 'absolutely astonishing'. The BAS couldn't understand how the appeal by Zana DeSilva for Zanzara Trust was upheld when firstly, the application was rejected by the Development Applications Board which was concerned that rules had not been followed and there was insufficient information to even fully review this application; secondly, the independent inspector recommended refusal; and thirdly, the application was not supported by the Technical Officers of the Planning Department. Bermuda has a development plan (the Bermuda Plan 2008) that has been approved by Parliament and a robust planning process and we believe that no Minister should ever interfere with that unless they can make an extremely strong case that they are acting in the national interest. That certainly does not apply in this situation. The decision has now been overturned but the new minister has pledged to review the application and there is no guarantee that he will not also allow the appeal.

The Audubon Society is seriously concerned about the potential loss of wetland habitat – as all should residents be. The fact that there are existing industrial use sites in the Devonshire Marsh basin should not be used to justify expansion of that activity. This industrial use dates back many years when people did not appreciate the environmental importance of wetlands. One of the reasons the Bermuda Audubon Society was formed (1954) was to increase the public's acceptance of the value of not just wild birds – but also plants, soil and water – and most importantly, the interdependence of these natural resources.

There was a crisis facing Bermuda's marshes as they were being used as garbage dumps. It took two decades of growing garbage tips and filling in of outlying marshes before the attitude developed against the prevailing system. Minnows were introduced into the marshes to control the mosquito larvae and ditches were created to help the fish survive. Why are Bermuda's wetlands so important?

- They are a vital part of Bermuda's fragile ecosystem. The limestone geology of Bermuda means a lack of surface water. This fact and the past practice of marsh drainage means that we have only about 100 acres of peat marsh habitat today. Remaining areas are so small that any further loss of habitat is extremely serious.
- The marsh plays host to many unusual species of fauna and flora. Up to 20 species of shorebird may be recorded during the year. Numerous ducks, herons and egrets are also present in the winter.
- The Devonshire Marsh basin was on a short-list as a Ramsar site. Bermuda is on the list of contracting parties to the Ramsar Convention (The Convention on Wetlands of International Importance, especially as waterfowl habitat). It is an international treaty for the conservation and sustainable utilization of wetlands i.e., to stem the progressive encroachment on and loss of wetlands now and in the future, recognizing the fundamental ecological functions of wetlands and their economic, cultural, scientific, and recreational value. Surely the Government is therefore aware of the importance of wetland areas? It is vitally important that no additional building should be allowed on these sites.
- It is an area that naturalists and walkers alike find aesthetically pleasing. Bermuda needs to keep its variety of habitats for all to enjoy.

Bluebird nest boxes – remember you can purchase these at Aberfeldy Nursery and the Bermuda Audubon Society benefits from the sale of the boxes.

Bird Report August to November 2011

Andrew Dobson

Highlights of the fall period in Bermuda have included: the first record of Hairy Woodpecker; the third record of Fork-tailed Flycatcher; fourth record of Wood Sandpiper; sixth record of Garganey; significant fall-out of shorebirds and an unprecedented number of Yellow-billed Cuckoos.

Petrels to Terns

Pelagic trips in November produced a record count of 28 **Cahows** at sea 25 Nov (HS). These trips also produced Bermuda's first ever fall records of **Great Shearwater** obtained 19 (DBW) and 21 Nov. Also recorded 21 Nov were **Cory's Shearwater** (2) and **Leach's Storm-Petrel** (AD, BF, HS, DBW). A **Masked Booby** was seen 5 miles off Bermuda 21 Aug and an imm. 17 Nov (DBW). An ad. **White Ibis** first seen



flying over St Georges GC, 2 Oct (PW) was seen in various locations to 22 Oct. An imm. **White Ibis** at Cooper's Island, 4 Oct (DP) was seen at various locations to 30 Nov+ (Photo – Andrew Dobson). A **Northern Harrier** was at Ferry Point, 25 Sep (NM). A **Garganey**, the 6th record for Bermuda, was discovered at Cloverdale, 21-23 Oct and present Devonshire Marsh to 19 Nov (AD, DW). A **Sharp-shinned Hawk** was seen at Spittal Pond, 19 Oct (BF). An imm. **Purple Gallinule** was at Parson's Road Pond, 12 Oct (NM) with a second at Somerset Long Bay NR 23- Oct (PH).

Bermuda witnessed one of the best fall-outs of shorebirds seen for many years. Over 100 **American Golden-Plover** were present at the Airport and Port Royal GC, 17 Sep (AD, PW). During Sep record numbers of **Semipalmated Sandpipers** were recorded – with estimates of over 1,000 birds. Counts of over 100 birds were common on golf courses and farms. Two **Piping Plover** were at Horseshoe Bay, 12 Sep (LM).

Bermuda's fourth **Wood Sandpiper** was at Warwick Pond 12 Nov (AD, PW). Four **Willet** at Ferry Point Park, 17 Sep were unusual (AD). A **Eurasian Whimbrel** was at Port Royal GC 28 Aug-21 Sep (NM). A **Hudsonian Godwit** was discovered at Port Royal GC, 17-24 Sep (NM). A **Red Knot** was present on Port Royal GC, 10-28 Sep (AD) and another at Mangrove Bay, 4 Dec (DW). A record 180 **Pectoral Sandpipers**



were seen in the west end on 15 Sep as T.S. Maria passed (DBW). A **Ruff** was on Mid-Ocean GC, 29-30 Sep (AD, PW). A **Wilson's Phalarope** was at Spittal Pond, 17 Sep (TW). A **Great Skua** was 5 miles off Bermuda 19 Nov (DBW). A **Roseate Tern** was noted amongst 50 **Common Terns** in Harrington Sound, 3 Sep (DBW). Two **Least Terns** were seen roosting at the Airport with **American Golden Plovers** 4 Sep (DBW). A **Black Tern** (JM) with a flock of **Common Terns** (20+) in Castle Harbour, 4 Sep (JM) was re-located in St. Georges Harbour 5 Sep (PW). Following T.S. Maria on 15 Sep., tern passage peaked on 16 Sep with **Sandwich** (3), **Roseate** (2), **Common** (100), **Arctic** (1) and **Forster's Terns** (2) all in Harrington Sound (PW). In Castle Harbour, there were additionally **Common** (4), **Least** (6) and **Black Tern** (2) (JM). A pelagic trip off Bermuda produced an imm. **Brown Noddy** 17 Aug and an imm. **Sooty Tern** 18 Aug (DBW). Another **Brown Noddy** was seen at Ferry Point, 23 Oct (PW).

Cuckoos to Sparrows

During the first week of October there was a massive fall-out of 1000+ **Yellow-billed Cuckoos**. (Photo – Andrew Dobson). Birders and members of the public reported them from all over the island including the business district of the City of Hamilton. Bermuda has experienced falls of cuckoos before, but the number on this occasion was unprecedented. There were reports of "ten cuckoos in one tree" and flocks



of up to 20 cuckoos feeding on fairways of golf courses. One small pumpkin field held 30+ cuckoos. Golf courses provided easy observation of the birds where they didn't appear exhausted but were actively feeding and approachable. The event might be explained by hurricane *Ophelia* which passed 120 nautical miles to the east as a category 4 storm on 1 Sep. A likely migrant **Barn Owl** was mobbed by 4 American Crows at Lovers Lake, 17 Sep (DBW). The only **Chimney Swift** recorded this year was over Wreck Hill 26-27 Oct (DBW). The first of three **Ruby-throated Hummingbirds** was discovered at Coral Beach Club, 18 Oct-14 Nov (PH). Two were seen there the following day and thanks to numerous photos, a third

was confirmed 22 Oct. One was present to 11 Nov (AD) (*Photo - Andrew Dobson*). A **Hairy Woodpecker**, the first record for Bermuda was seen at St Georges GC 30 Oct (PW). This may well have been the result of the very early snow storm in the US. A **Northern Flicker** was seen at the Alfred Blackburn Smith NR, 19 Oct (AD) and a second discovered on Mid-Ocean GC 20-28 Nov (GB). A **Yellow-bellied Flycatcher** was seen at Government House, 20 Oct (RG). A **Least Flycatcher** was seen at Tudor Farm, 6 Oct (PH). A **Great Crested Flycatcher** was a good find at Springfield NR, 2-4 Oct (AD). BIOS hosted a **Grey Kingbird** 23 Sep (PW) with another on Wreck Road, 7 Oct (WF). A **Fork-tailed Flycatcher** was photographed (NM) 5 Sep at Kindley Field, the third confirmed record for Bermuda. A **Ruby-crowned Kinglet** was on St Georges GC, 8 Oct (DBW). A **Northern Wheatear** was discovered on Port Royal GC, 1 Oct (WF). Single **Veery** were seen at St Georges GC 2 Oct (PW) and Wreck Road 6 Oct (WF). A small passage of **Swainson's Thrushes** occurred in the first week of October with one at Coral Beach Club 3 Oct (AD); four seen in one tree in the Arboretum, 4 Oct (DW); three on Wreck Road 6 Oct (DW) and Morgan's Point 8 Oct (AD). Single **Warbling Vireos** were at Wreck Road 10 Oct (WF) and Ferry Point Park 15 Oct (AD). One **Philadelphia Vireo** was seen at Fort Scaur, 9 Oct (DBW). At least 36 species of warbler were recorded during the season in Bermuda. The highlights being **Golden-winged Warbler** at Coral Beach Club 10 Oct (AD), **Cerulean Warbler** at St Georges GC 8 Oct (DBW), **Swainson's Warbler** at Port Royal GC 11 Sep (AD), **Connecticut Warbler** at Ferry Point 9 Oct (PW) and **Yellow-breasted Chat** off Wreck Road 21 Oct (AD). A **Dickcissel** was on St Georges GC, 8 Oct (DBW). A **Grasshopper Sparrow** was at Alton Hill, 20 Oct (DW). A **Swamp Sparrow** was at Ferry Point Park, Bermuda 9 Oct (PW). The only **White-crowned Sparrows** were at Wreck Road 10 Oct (WF) and Mid-Ocean GC 12 Oct (AD).

Observers: Geoff Bell, Andrew Dobson, Bob Flood, Wendy Frith, Richard Gozney, Peter Hopkin, Jeremy Madeiros, Leila Madeiros, Neal Morris, Drew Pettit, Hadoram Shirihai, David Wallace (DW), Paul Watson, Tim White, David Wingate (DBW).

Breeding Success and Status of the Longtail in 2011

Jeremy Madeiros



The Bermuda Longtail, or White-tailed Tropicbird as it is correctly known, is one of Bermuda's best-known and most-loved bird species. Long considered to be the first harbinger of spring and foretelling of warmer weather to come, the first sighting of a Longtail is an event that is always recorded in the local newspapers. It was also long considered to be Bermuda's unofficial National Bird, although that honour was officially given to the endemic and critically endangered Cahow, or Bermuda Petrel *Pterodroma cahow* in 2003. The Tropicbird is a

beautiful, black and white seabird with a wingspan of just over 3 feet which can be found in subtropical seas in the Atlantic, Indian and Pacific Oceans. Its most distinguishing features are the two incredibly

long central tail feathers, which are longer than the rest of the bird's body. It nests in holes and cavities in rocky shorelines and coastal cliffs, although it can nest on the ground under vegetation on the few islands that have no introduced rats, cats, dogs or other predators. Quite thinly spread out and never common, many populations have declined in recent decades due to the impacts of introduced mammal predators and coastal development. *Photo – Andrew Dobson.*

The North Atlantic contains a distinct sub-species, *Phaethon lepturus catsbyi*, which only nests in Bermuda, the Caribbean and islands off the northern coast of South America. The Bermuda population of about 2500-3000 nesting pairs is very important as it represents about half of the entire population of this subspecies. This means that Bermuda's tropicbirds are not only important to the local environment, but are of international significance. Little has been known until recently as to whether Bermuda's breeding population, as was widely suspected, was declining. Conservation officer David Wingate first monitored a number of Tropicbird nest sites on the Castle Harbour Islands from the 1960s to the 1980s to determine the breeding success of the species. Head aquarist at B.A.M.Z. Patrick Talbot restarted this survey monitoring nests in the same area from 2000-2003 as part of his master's thesis. Because of the importance of Bermuda's nesting population and the need to know more about the present status of the species on the island, I took over study of the population in 2005 to gain more information on current levels of breeding success and possible threats to the species, and determine ways of protecting and assisting the Tropicbird on Bermuda.

Every year, over 200 marked tropicbird nests are monitored at ten different survey locations through the eastern half of Bermuda. Eight of these locations are on the Castle Harbour Islands, which are nature reserves managed to eradicate rats and other predators, and where human disturbance is strictly controlled. The other two locations are near Shelly Bay, Hamilton Parish, and on Bay Island, Bailey's Bay. These are not managed, and contain rats, crows (which predate on tropicbird eggs and chicks), and at Shelly Bay, human disturbance. For this study, all accessible tropicbird nests are marked with plastic number tags and are checked weekly through the nesting season between May and October. Any visits of adult tropicbirds, courtship activity, eggs laid, or chicks hatching are recorded, and confirmed chicks are then monitored through their development to ensure that the number that successfully fledge to sea is accurately known. Causes of breeding failure were determined where possible. As part of a long-term study of growth rates, a sample of tropicbird chicks are regularly weighed and measured through their development for weight, outer wing length, tarsus (lower leg) length, and bill length. The variations in growth rates and maximum chick weights from year to year are indicators of the productivity of the ocean in Bermuda's vicinity. Years where chicks grow rapidly and reach higher weights indicate plenty of prey items such as squid, ocean robins and flying fish, which also attract larger numbers of commercially important oceanic food fish such as Tuna, Wahoo and Dolphin Fish (or Mahi-mahi).

Threats to the Tropicbird on Bermuda

There are a number of threats facing the nesting population on Bermuda, and one of the objectives of this project is to identify these threats and work out methods to control or counteract them. Although the study has shown that there has been a steady increase in the number of active nest sites at the study locations, this is largely due to a large number of artificial nests that have been installed at seven of these locations. At the same time, a number of the natural nest sites have been lost to erosion and cliff collapse during strong hurricanes, with over 30 of the study nests being destroyed during hurricane *Igor* in 2010. Over 12 tropicbird chicks were washed out of surveyed nests and killed during this storm. During hurricane *Fabian* in 2003, it is estimated that almost 300 nests were lost on the Castle Harbour Islands alone, with some islands losing more than half of their nest sites. Further minor losses of nest sites and chicks were experienced in 2006, 2009 and 2011 due to high waves from passing hurricanes. These losses cause shortages of suitable nest sites for the tropicbird because the birds cannot dig their own nests in the rock, but have to wait for erosion to carve out new cavities in newly collapsed cliff areas, a process that can take many decades. Because of the potential effect this would have on Bermuda's tropicbird population, a joint project between the Department of Conservation Services (DCS) and the Bermuda

Audubon Society (BAS) has seen the installation of literally hundreds of artificial 'Igloo' nests in locations where natural nests have been lost to hurricane erosion. These nests have also been available for sale to the public from the BAS for installation in appropriate coastal properties.

Additional threats to the tropicbird on Bermuda include the loss of nest sites due to building of docks, stairways and retaining walls in rocky coastal areas, human disturbance, and predation by introduced mammal and bird predators. These include domestic dogs and domestic and feral cats, which have been recorded as killing both adults and chicks in nests that they can reach, and rats and crows, which can eat both eggs and young chicks in the nests. In 2009, one group of 4 crows was found to have destroyed over 50 eggs from tropicbird nests in the Tucker's Town area, and to have killed and eaten well over a dozen chicks, before they were eradicated by a pest control officer. As each pair of tropicbirds generally lays only one egg each season, this can have a serious impact on the breeding success over large areas of Bermuda's coastline (although established pairs can sometimes produce a second egg after a recovery period).

In the 2009 nesting season, a large Peregrine Falcon stayed for much of the summer on Bermuda and in September regularly visited the Castle Harbour Islands, where it killed and ate a number of birds. These included Mourning Doves and Common Ground-Doves, shorebirds and at least two adult and four fledging tropicbirds, whose remains were found on Nonsuch Island, Horn Rock and Southampton Island (no action was taken against the falcon as it is a naturally occurring migrant species).

Another threat involves the introduced feral pest species, the Rock Dove or Domestic Pigeon, which occupies tropicbird nest cavities during the winter months and so fouls these cavities with droppings and parasitic mites that the tropicbirds will no longer use them. Wild pigeons are known carriers of bacteria in their droppings such as salmonella, which causes food poisoning, due to their habit of foraging for rotten food in trash cans in parks and cities, and also pose a real human health risk due to their habit of roosting and excreting on roofs, contaminating the water supply. As a result, they have been the subject of an ongoing culling programme which has been successful in reducing their numbers to a third of what was recorded 10 years ago.

Results of Study:

This study has confirmed that the number of active, accessible Longtail nests at the study locations increased from 159 in 2009, to 174 in 2010, and to 214 in the 2011 nesting season (See Table 1). The number of confirmed successfully fledged chicks likewise rose from 101 in 2009, to 132 in 2010 (despite the effects of hurricane *Igor* in September of the year, which killed more than 12 of the chicks which were being monitored), and to a total number of 153 chicks in the most recent, 2011 nesting season. This represents breeding success rates of 63.5% for 2009, 75.9% for 2010, and 71.5% for the 2011 nesting seasons. These rates are unusually high for any breeding seabird species.

TABLE 1: Tropicbird nesting

YEAR	Nests surveyed	Active nests	Fledged chicks	Breeding success	Newly prospected nests
2009	177	159	101	63.5%	26
2010	247	174	132	75.9%	30
2011	255	214	153	71.5%	23

One of the objectives of this study was to compare the breeding success of tropicbirds nesting in artificial nests installed at the study locations, compared to that of birds nesting in natural rock cavities. This is important for confirming whether this is an effective method of addressing impacts on the nesting population caused by the loss of hundreds of natural nests from recent hurricane impacts.

As of 2011, a total of 96 artificial nests have been installed at seven of the survey locations (Long Rock, Inner Pear Rock, Green Island, Nonsuch Island, Horn Rock, Southampton Island, and Shelly Bay). Out of these 96 nests, a total of 69 had nesting activity recorded during the 2011 nesting season, of which 55 produced successfully fledging chicks. This represents 79.7% breeding success with the artificial nests. In comparison, in 2011 there were a total of 143 natural nests with nesting activity, of which 99 produced successfully fledged chicks, representing 69.2% breeding success. The artificial nest sites therefore experienced 10.5% higher breeding success than the natural sites, a significant figure that confirms previous results from 2006 – 2008. These results illustrate that the programme of artificial nest installation has already been a success in maintaining and increasing the numbers of breeding pairs and fledged chicks and that it should be continued and, where appropriate, expanded. This technique also has potential application in other locations where White-tailed Tropicbirds nest, especially in the Caribbean where this species has been confirmed as declining in numbers at many known nesting locations.

Based on these results, this survey shows that the White-tailed Tropicbird is maintaining a surprisingly high breeding success on Bermuda, both at managed and unmanaged locations. Surveys over the last 6 years indicate an estimated local population of 2500 – 3000 nesting pairs. It is, however subject to a number of threats on the island, of which the most serious is a shortage of suitable nest sites due to storm erosion and coastal development. Predation by introduced mammal and bird predators such as Crows, rats, dogs and cats is also a threat, as is nest-site competition by escaped (feral) Pigeons. On the other hand, artificial nests when correctly installed have been proven to be effective in counteracting losses of nests from hurricanes and hold great promise if more widely used. With continued protection and management, the future looks good for Bermuda's harbinger of spring.

Society News

- **Pay Your Membership Online**

We are now set up for online memberships. If you have not yet paid your 2011-2012 dues you can now do so by credit card online at www.bermudatix.bm – just click on Bermuda Audubon Society under 'Memberships' on the Home Page.

- **Bermuda Spirit - new Bermuda book**

The Bermuda Audubon Society is pleased to have been chosen as one of the charities to benefit from the sale of 'Bermuda Spirit', a beautiful coffee-table book of photography featuring well-known people who have made a difference in our community. David Wingate and Jeremy Madeiros are included in the book, with information about their work with the Cahow. The authors Georgia Crowe-Benevides and Kathryn M. Deane have decided to donate all the profits of the book to a number of local charities including BAS. The more books sold - the greater benefit there will be for Audubon. Orders can also be made on the book's website www.BermudaSpirit.com

- **Join the Bermuda Audubon Society on Facebook**

- **Keep up to date with all the Society's news and events**
- **Bird photos from Bermuda are posted by members every week**
- **Your chance to find out what is happening and to comment if you wish**
- **Go to www.facebook.com and search for 'Bermuda Audubon Society'**



The annual Paget Island camp was cancelled due to weather and boat problems. That didn't deter 'campers' from a fieldtrip to Ferry Point and then observing Cahows off Cooper's Point. Committee member Paul Watson is seen showing a Yellow-billed Cuckoo to the group.



Audubon committee member Kim Smith was nominated by the Society for the annual Centre on Philanthropy volunteer recognition awards. She is pictured here with Audubon President Andrew Dobson at the awards evening.



Above: Bermuda Institute students make bluebirds boxes for the Audubon Society as part of PartnerRe's 'Dollars for Hours' programme.

Below: Keith Rossiter on behalf of Audubon gave talks on Bluebirds to kids attending the Mid Ocean Club's summer camp in August.



Above: Lorenne Birtles of the Bermuda Kayak Association with a waterlogged longtail chick that was rescued and eventually released back into the wild.

Below: Volunteers Natasha and Adam Power with Andrew Dobson at the City Market

