

Envirotalk



GOVERNMENT OF BERMUDA
Department of Environment and Natural Resources

WINTER 2019
VOLUME 83 No. 4

TO PROTECT BERMUDA'S ENVIRONMENT AND RESPONSIBLY MANAGE ITS NATURAL RESOURCES

WELCOME

to our winter edition of Envirotalk..

In this issue –

- In a guest article from the Bermuda Audubon Society, Erich Hetzel explains the successes and ongoing challenges of the **Tern Recovery Project**.
- The Biodiversity and Marine Resources Sections have compiled some information on **why sand, sea glass, and coral should not be collected as souvenirs**.
- Additionally, learn about the environmental and potential legal **consequences of removing seashells** from their habitat.
- Also see:
 - Our **News & Notices** for reminders and upcoming events.
 - The **Environmental Calendar** to see what events are happening at this autumn.
 - The **Planting Calendar** to get a head start on what to plant this autumn.



West Indian Topshells
– a protected species

Please contact:

Envirotalk mailing list:
envirotalk@gov.bm to be placed on the mailing list or for suggestions for future articles.

TERN RECOVERY PROJECT 2019

It was a drama-filled summer for Bermuda's two breeding tern species. In April, with the help of Tim Patton's barge and many volunteers, we installed a sound system on Pearl Island and tern decoys on both Pearl and Lambda Islands. The solar powered sound system played a continuous loop of Common and Roseate Tern calls during daylight hours. This attractant system has been used in many other jurisdictions with great success. Our hope was that we could attract the terns away from the old Navy buoys in the Little Sound, which are perilous places for terns to be raised – even if they are rat and cat free. Pearl Island, where last year we had a pair of Roseate Terns nest for the first time since 1849, is an ideal nesting habitat for terns. It has been over ten years since Common Terns have nested on Pearl Island though. We did not know if the attractants would work in Bermuda, since our Common Terns are not colonial nesters, preferring to disperse amongst the islands.



David Wingate began tern management many years ago and more recently, he has been assisted by Miguel Mejias. A larger group of volunteers has also come forward to help with this important project. Protecting our local population of genetically distinct Common Terns is critical. The Bermuda population of Common Terns, which once numbered over thirty pairs, was decimated by Hurricane Fabian and hurricanes since. In 2019, we had only three mating Common Tern pairs: one pair nesting on a buoy in St. George's; one pair nesting on a raft in Hinson's Bay; and one pair on a buoy in the Little Sound.

Although the Common Terns were off to an encouraging start this year, our hopes were soon dashed when the terns abandoned four eggs in Hinson's Bay and then we lost a pair of chicks from a buoy in the Little Sound. Fortunately, the experienced St. George's pair raised two chicks to fledging. Also, the Hinson's Bay pair persevered and they eventually raised two chicks to fledging. Unfortunately, those four fledges represented our total Common Tern productivity for the season.



Common Terns nesting on a buoy (Photo: Erich Hetzel)

Our Roseate Tern pair returned to Pearl Island in 2019 and a third Roseate was also attracted to the action on Pearl Island and stayed for the summer. The pair laid two eggs this year and raised two chicks to fledge. The only drama with these fledges was that one chick seemingly disappeared from view for two weeks, so its minders became very concerned. Fortunately, the missing chick appeared when it was preparing to fledge. Keeping company with the Roseates on Pearl Island at the end of their stay was a pair of Common Terns that had relocated from the South Buoy in Little Sound. This relocated pair laid two eggs but the eggs were abandoned before hatching, likely because it was so late in the season. This pair's late nesting attempt on Pearl Island gives us hope that next year the same pair will return there to nest. During one of our final 'tern checks', we had eight terns circling our boat calling out – five Roseate Terns and three Common Terns - A sight that may not have been seen in Bermuda since before 1849! To see a short video of the tern chicks go to <https://vimeo.com/345348051>



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**A Roseate Tern returning to Pearl Island with food for its chick
(Photo: Erich Hetzel)**

One more exciting event occurred at the end of the summer. That was the appearance of a double banded (one band on both legs) Common Tern in Hinson's Bay. The banding pattern and a photo ID confirmed that this bird was one of three fledges banded as chicks in 2016 in Harrington Sound as part of an experiment by David Wingate. The fact that at least one of these birds survived is exciting news. Possibly next year another may return as well. The story of this research will have to be told in a future edition of the newsletter however.



Terns in Hinson's Bay (Photo: Erich Hetzel)

In September, as we were tracking the departure of our Common Terns and watching the arrival of the fall migrants, Hurricane Humberto hit us. That storm brought sustained winds above hurricane force and wind gusts of up to 120 knots. The only good news was that it was not a direct hit. Ten Common Terns, possibly all of our males and the fledges, were still being observed as the hurricane approached. After the hurricane a maximum of four local terns have been seen, including a double-banded tern. What has become of the rest remains to be seen next year. Unfortunately, the parade of hurricanes that now menace and hit us with an astonishingly high frequency is threatening to drive our Common Tern population to extinction.

Erich Hetzel,
Bermuda Audubon Society

PLEASE LEAVE THE SEASHELLS AT THE SEASIDE

For many of us, searching the strand line for washed-up treasures is an essential part of any day at the beach. It is tempting to pick up your best finds and take them home, however there are a number of reasons you should not remove seashells from the beach. The most obvious reason is that if the shell has a live inhabitant you will be killing a creature for your souvenir. Is that really the memory that you want? Plus, it is going to get pretty stinky before you get it home...

Even if the shell has no one living in it, it is still a part of a living ecosystem. In the ocean, old shells provide shelter for marine hermit crabs and hiding places for small fish and even animals like an octopus. The surface of an old shell also provides attachment sites for algae and animals like corals, tube worms as well as the young of shell-producing animals like mussels and scallops. If it should happen that no-one wants it, the shell will eventually be broken down and help to maintain the supply of sand for the beach.

Shells that wash up on the shore also make an extremely important contribution to the ecosystem. In Bermuda, the land hermit crab (*Coenobita clypeatus*) roams the seashore looking for the empty shells of marine snails which it uses for shelter. Like all hermit crabs, this beautiful red and purple crab must cover its soft abdomen with a shell to prevent dehydration and overheating or being eaten by a predator. A hermit crab requires a steady supply of shells throughout its life. As the crabs grow, they change up into bigger shells and leave their outgrown one as a hand-me-down. The presence of one discarded shell in a hermit crab habitat triggers a cascade of shell swapping that is well documented by scientists. In addition, if a crab's shell gets damaged, it will need to acquire a new one.



A land hermit crab living in a
West Indian Topshell
(Photo: Alison Copeland)

The West Indian Topshell is the favourite shell choice of land hermit crabs in Bermuda, and also one of the most commonly confiscated shells at our airport. Just like souvenir collectors, crabs need unbroken shells free of cracks and holes.

The Department of Environment and Natural Resources asks that the public please leave shells on the beach; the crabs and other creatures need them more than you do. In some areas it may seem like there are many of these shells, and the taking of one should not be a big deal, but

you need to know that the population of Topshells you see are the result of nearly 40 years of careful conservation work. If that is not enough to convince you, bear in mind that the collection of this and other species is illegal.

The land hermit crab has become so rare in Bermuda that it has been listed as a threatened species under the Protected Species Act 2003 and if you collect a shell containing a land hermit crab, the penalty is a \$15,000 fine or 1 year in jail.

In Bermuda a number of shells are listed as protected under the Fisheries (Protected Species) Order 1978, and may not be collected even if they are empty. If you are convicted of taking one of these shells, you are liable for a fine of up to \$25,000 or 2 years in jail, or both. The penalties are doubled if you are convicted for the same offence a second time.

The protected shells are:

- Netted Olive (*Oliva reticularis* now known as *Americoliva reticularis*)
- Bermuda Cone (*Conus bermudensis* now known as *Conasprella bermudensis*)
- Bermuda Scallop (*Pecten ziczac* now known as *Euvola ziczac*)
- Calico Scallop (*Argopecten gibbus*)
- Calico Clam (*Macrocallista maculata* syn. *Megapitaria maculata*)
- Atlantic Pearl Oyster (*Pinctada imbricata*)
- West Indian topshell (*Cittarium pica*)
- Harbour Conch (*Strombus costatus* now known as *Lobatus costatus*)
- Queen Conch (*Strombus gigas* now known as *Lobatus gigas*)
- Helmets and Bonnets of all species (Mollusca: *Cassididae*)



Netted Olive (left) and Bermuda Cone Shell (right), both shells are listed as protected species under the Fisheries (Protected Species) Order 1978. (Photo: DENR)

If your chosen souvenir is a Queen Conch, the penalties above apply, but these shells are also protected by an international treaty – the Convention on the International Trade in Endangered Species or CITES, which regulates the movement of listed plants and animals. This means that even if you do successfully carry a Queen Conch off the island, you could run into fines or jail time in your home country, or any airport you transit through. Violations of this treaty are taken very seriously by authorities worldwide.



Calico Scallop, protected by both the Fisheries (Protected Species) Order 1978 and Protected Species Amendment Order 2016 (Photo: Sarah Manuel)

Instead of taking home the shells you find while beachcombing, why not practice low impact travel by taking photos instead? You could create your own shell or beach themed photo art that will be a much nicer souvenir of Bermuda than a smelly shell with a dead animal inside.

By removing shells from the beach, you could be killing an animal or depriving a creature of its current or future home. You may also be breaking the law. Please don't do it.



**Queen Conch
(Photo: Alison Copeland)**

**Alison Copeland,
Biodiversity Officer**

SOUVENIR HUNTERS ARE CARRYING AWAY BERMUDA'S BEACHES

This past summer, staff at the Bermuda International Airport contacted the Department of Environment and Natural Resources requesting assistance with raising awareness about the issue of exporting holiday mementos collected from the environment. Customs officials and security personnel at all outbound screening areas (USA, UK, and Canada) in the airport have been finding quite a few departing visitors hoping to leave with sea shells, corals, sea glass and sand stashed in their checked luggage and carry-on bags. This material is being regularly confiscated and turned in to Marine Resources Officers and the Fisheries Wardens for return to the sea.

A recent report, based on approximately 2 weeks' worth of seizures, told of 222 lbs of sand, 8 lbs of shells (some containing live snails), 4 lbs of dead corals (which are locally protected and controlled internationally by the Convention on the International Trade of Endangered Species - CITES), and a large chunk of cave flowstone (from a protected cave habitat) that had clearly been hacked off by the person smuggling it.

All of the public beaches on Bermuda are in lands designated as either a park or nature reserve and are covered by the National Parks Act and Parks Regulations. As such, visitors to these protected areas are not permitted to remove anything, including the sand and rocks.

Sand



Bermuda is well known for its pink-hued beaches which are a composite of shell fragments, crumbled limestone rock, pieces of dead coral, and red foraminifera (single-celled sea creatures).

A conservative estimate of the amount of beach sand leaving Bermuda by air visitors was calculated to be around 3 metric tonnes each year; however the amount of sand collected as a souvenir by cruise ship passengers is currently unknown. Comments on social media indicate that part of the problem comes from local tour guides who are encouraging people to take sand.

Bermuda is not the only country encountering this issue. Theft of white beach sand and rocks from the Italian island of Sardinia is very common and it appears to be fuelled by a market for these items on the internet. Sardinia dealt with this theft problem by making it a prosecutable offense, as one vacationing couple learned this past summer (https://edition.cnn.com/travel/article/sardinia-sand-theft-arrest-scli-intl/index.html?fbclid=IwAR2zkhcV0kwdykmk-Ee5CymfSXzAt6EdiSPzMv7uR5t1kfwM_ZFzg3uL2d4).

It is important to note that the importation of unsterilized sand and soil into the USA, as well as many other countries – including Bermuda, is prohibited because of the risk of spreading pathogenic bacteria, viruses, fungi and micro-

invertebrates. Countries are becoming increasingly aware of biosecurity risks which pose a threat to a nation's social, economic and environmental welfare and have increased their vigilance at border control.

Sea Glass



The Bermuda National Parks Act also makes provisions for historic artifacts, which are described as *“any object of historical or cultural significance that is manufactured, used or modified by humans including coins, food remains, weapons, ammunition, industrial waste and other products produced by human activities.”* Under this definition, sea glass cannot be removed from an area that is zoned park or nature reserve, and the zoning extends 30 feet into the water from the shoreline.

There are a number of websites that promote the collection of sea glass from Bermuda, and some of the most popular locations are on private lands close to the Royal Naval Dockyard. However, collectors need to respect any restrictions placed upon the areas they wish to visit. For example, the landowner of these popular beaches has allowed public access but prohibits the taking of sand or glass.

Corals



All stony corals (and many others) have been included on Appendix II of CITES due to the growing harmful effects of commercial trade on fragile coral ecosystems. This convention applies to all parts of an animal, whether living or dead, so even dead coral collected while beachcombing is off-limits and subject to confiscation at any international airport.

All of Bermuda's shallow water and deep water corals are protected by local law. The Bermuda Protected Species Act names 54 species of soft corals (including sea fans), 48 species of stony corals, 1 species of fire coral and 10 species of black corals that should not be collected and cannot be exported. The full list can be viewed at the Bermuda Laws online website: <http://www.bermudalaws.bm/laws/Annual%20Laws/2016/Statutory%20Instruments/Protected%20Species%20Amendment%20Order%202016.pdf>

The Department of Environment and Natural Resources asks that tour guides, the hospitality industry, and residents who have guests or customers visiting from overseas be acquainted with local laws governing the collection of keepsakes from the environment. The public is also reminded to pay attention to, and respect the requirements of, all posted signs.

Department of Environment and Natural Resources Staff

NEWS & NOTICES

6th Winter Lionfish Tournament – January 2020

Calling all lionfish cullers, and wannabe cullers! The 6th winter lionfish derby will be taking place throughout the month of January. If you already have a lionfish culling permit, sign up at Makin' Waves on Church Street during the first half of December. If you are interested in getting a lionfish culling permit, visit www.lionfish.bm or the Bermuda Lionfish Culling Program Facebook page for more information.

Spearfishing Reminder

Recreational spear fishers are reminded that spearfishing statistics should be submitted monthly using the online portal at www.fisheries.gov.bm. Please call 293-5600 or email fisheries@gov.bm if you are having difficulties accessing the portal

Lobster Diving Reminder

Now that lobster season is underway, recreational lobster divers are reminded that they should fly a standard red and white dive flag when they are diving for lobsters, and must avoid diving in the vicinity of commercial lobster traps. Catch statistics must be reported using the online portal at www.fisheries.gov.bm.

Keeping lobster catch statistics up to date through the season helps improve accuracy, particularly when it comes to reporting locations, and avoids a rush or complications as the reporting deadline of April 30th approaches. Please call 293-5600 or email fisheries@gov.bm if you are having difficulties accessing the portal.

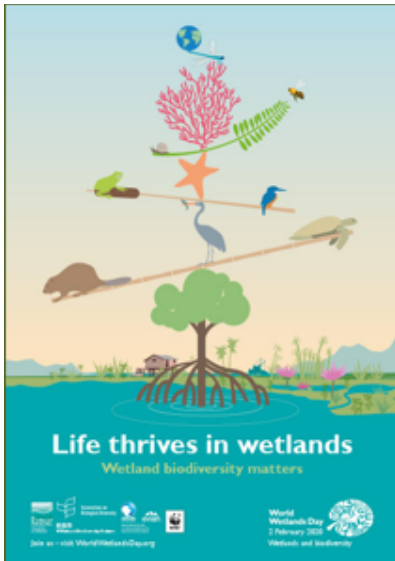
ENVIRONMENTAL CALENDAR WINTER 2019/2020

DECEMBER 2019

December 5th World Soil Day

World Soil Day 2019 (#WorldSoilDay) and its campaign “Stop soil erosion, Save our future” is envisaged to raise awareness on the importance of sustaining healthy ecosystems and human well-being by addressing the increasing challenges in soil management and, raise the profile of healthy soil by encouraging governments, organizations, communities and individuals around the world to engage in proactively improving soil health. <http://www.fao.org/world-soil-day/en/>

FEBRUARY 2020



February 2nd World Wetlands Day

2 February each year is World Wetlands Day. It marks the date of the adoption of the Convention on Wetlands on 2 February 1971, in the Iranian city of Ramsar. Each year since 1997, government agencies, non-governmental organizations, and groups of citizens at all levels of the community have taken advantage of the opportunity to undertake actions aimed at raising public awareness of wetland values and benefits in general, and the Ramsar Convention in particular. The theme for 2020 is “Wetlands and Biodiversity”. Did you know that Bermuda has 7 wetlands listed as ‘Ramsar Sites’ under this convention?

<https://environment.bm/ramsar-sites>
<https://www.worldwetlandsday.org/>

PLANTING CALENDAR – WHAT TO PLANT IN THE WINTER...

VEGETABLES

December: Beans, Beets, Broccoli, Brussels Sprouts, Cabbage, Carrots, Cauliflower, Celery, Chard, Chives, Kale, Leeks, Lettuce, Mustard Greens, Onions, Potatoes, Radish, Rutabaga, Spinach, Squash, Strawberry, Tomato, Turnip.

January: Beans, Beets, Broccoli, Brussels Sprouts, Cabbage, Carrots, Cassava, Cauliflower, Celery, Chard, Christophine, Kale, Leeks, Lettuce, Mustard Greens, Potatoes, Radish, Rutabaga, Spinach, Squash, Tomato, Turnip.

February: Beans, Beets, Broccoli, Cabbage, Carrots, Cassava, Cauliflower, Celery, Chard, Christophine, Corn, Cucumber, Kale, Leeks, Lettuce, Mustard Greens, Potatoes, Pumpkin, Radish, Rutabaga, Spinach, Squash, Sweet Potato, Tomato, Turnip.

FLOWERS

December: Ageratum, antirrhinum (snapdragon), aster, aubrieta, begonia, bells of ireland, candytuft, carnation, centaurea, chrysanthemum, cineraria, dahlia, dianthus, geranium, gerbera, gypsophila, impatiens, larkspur, lathyrus, nasturtium, nicotiana, pansy, petunia, phlox, rudbeckia, salpiglossis, salvia, statice, snow-on-the-mountain, spider flower/cleome, star-of-the-veldt, stock, sweet william, verbena and viola.

January: Ageratum, antirrhinum, aster, aubrieta, begonia, bells of ireland, candytuft, carnation, centaurea, chrysanthemum, cineraria, dahlia, dianthus, geranium, gerbera, gypsophila, impatiens, larkspur, lathyrus, nasturtium, nicotiana, pansy, petunia, phlox, rudbeckia, salpiglossis, salvia, statice, snow-on-the-mountain, spider flower/cleome, star-of-the-veldt, stock, sweet william, verbena and viola.

February: Acrolinium, ageratum, alyssum, antirrhinum, aster, aubrieta, baby blue eyes, bachelor's buttons, bird's eyes, blanket flower, begonia, bells of ireland, calendula, candytuft, carnation, centaurea, chrysanthemum, cineraria, coreopsis, dahlia, Africa daisy, dianthus, forget-me-not, geranium, gerbera, globe amaranth, globe gilia, godetia, gypsophila, hollyhock, impatiens, larkspur, lathyrus, marigold (African), marigold (French), nasturtium, nicotiana, pansy, petunia, phlox, phlox (annual), red tassel flower, rose everlasting, rudbeckia, salpiglossis, salvia, scabiosa, statice, snow-on-the-mountain, spider flower (cleome), star-of-the-veldt, stock, sweet pea, sweet william, verbena and viola.

ON HER MAJESTY'S SERVICE



GOVERNMENT OF BERMUDA

Department of Environment and Natural Resources