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GOVERNMENT OF BERMUDA
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PROMOTING APPRECIATION, ENHANCEMENT AND CONSERVATION OF BERMUDA'S ENVIRONMENT

WELCOME

In this issue...

- Jameka Kelly, Assistant Park Planner, unveils a new collection of plants in the Botanical Gardens celebrating 400 years of agriculture, horticulture and tradition.
- Mark Outerbridge, Coordinator for the Bermuda Turtle Project, gives us an update on the state of the turtle population in Bermuda and the conservation efforts of the BTP.
- Our Environmental Officer, Patricia Begeman, outlines the rules and regulations of burning waste in our backyards.
- Toi Wellman, Assistant Agricultural Officer, shares some useful tips with us on getting our children to eat their vegetables.
- As usual we have two delicious Bermuda recipes, ideal for summer entertaining.
- We've got the Summer Planting Calendar.
- And finally, Claire Jessey, our Plant Protection Officer, provides useful information on centipedes in Bermuda.

Please contact Caroldey Douglas (Tel: 239-2307 or e-mail: cdouglas@gov.bm) with ideas for future articles.

Please contact Alison Green (Tel: 239-2310 or e-mail: agreen@gov.bm) if you would like to be added to the subscriber list.

This new collection to the Botanical Gardens showcases plants that were first brought to Bermuda. These plants were grown to be eaten locally, but also as cash crops to be exported. The early settlers sought economic stability through the production of a number of these crops.

A few plants located in this collection are:

Bermuda Arrowroot: at one time was an important crop, and the product was known and used in many parts of the world, being valued especially as a food for children and invalids. The flour is derived from the roots which are carefully ground and thoroughly washed. The bark was used by the early settlers for tanning animal hides.

Bermuda Cedar: is endemic to these islands. In the early days its lumber was used in the building and repair of ships, housing and furniture. Using its wood in the preparation of sugar caused a ban on using it as the forests began to decrease. Berries were used to make a drink as medicine for colds.

Bermuda Palmetto: for the early settlers, provided efficient thatch roofing. The berries, known by the locals as 'cock-a-berry', were eaten as food (green) as flour (dried). The hearts or crown were also eaten and an intoxicating brew called Bibbi was made from its sap. This drink was later banned to save the species from severe decline. The leaves were later used to weave baskets, mats and hats.

Dockyard Lime: was introduced into the island in the early 1630s. It was used as rent payment to landlords and exported to North America. The juice can be used to keep mosquitoes away. Jams and jellies were also made from it. The fruits contain pectin which is used today in anti-diarrhea medicines.

Mulberry: was introduced in 1610 after James I, King of England ordered mulberries to be grown in the islands with the silk trade in mind. Rich in vitamin C, the fruits are eaten raw or cooked to make jams and wine.

Coffee: was introduced in 1790. It failed as an economic crop because of the processes required to produce good coffee.

Castor Oil: was introduced in 1623. This plant has been used for thousand of years. The seeds/beans contain the oil which was often taken as a laxative but taken in large doses results in poisoning due to its alkaloid and protein content and polysaccharides which cause violent reactions in humans. The oil was used as a lubricant for airplane and rocket engines. Nowadays it is used to make varnishes, paints and cosmetics.

Bermuda Onion: was first recorded being grown here in 1609. Early sailors ate an onion a day to prevent the dreaded scurvy disease.

Sea island Cotton: In 1624 slaves weaved cotton into cloth dyed with indigo. In 1862 Bermuda's cotton ranked highest of all exhibits in an international exhibition in London. There was a time in which the early inhabitants had little clothing and cotton was ordered to be grown on every share of land.

Cassava: was introduced in 1616 and was the principal export in 1868–1869. Used to make a meal from which breads, pies and cakes were made. For most locals Christmas is incomplete without it.

Tobacco: In 1603 the Spanish reported seeing a patch growing here. It was reintroduced by the English in 1610. Tobacco was used as currency for paying rent and wages. When duty on tobacco was raised profits went down. By 1868 tobacco was growing wild throughout the island.

Easter Lily: was introduced in the 18th or early 19th century from Japan. Destroyed by a virus for two decades, Howard Smith developed a resistant hybrid that became a major export. It is properly known as *Lilium 'Howardii'*. Traditionally, flowers are sent to the Queen of England at Easter each year. Perfumes are made from the flowers which are also used in arrangements and sold island-wide during the Easter period.

Sugar Cane: was introduced in 1619 and exported to Virginia, but the ground was said to be too rocky and there was more interest in tobacco farming. The burning of cedar was prohibited which was the practice to both clear land for its cultivation and burning the wood for processing sugar. Today sugar cane is used to produce molasses and rum.

By the 1740s, there were several Acts passed forbidding the export of several plants as the people were in such want.

Jameka Kelly
Assistant Park Planner
Department of Parks

BERMUDA'S TURTLES AND TERRAPINS

Bermuda's nesting population of green turtles is believed to be extinct. Today the shallow reefs and seagrass meadows of the Bermuda Platform provide foraging grounds for immature hawksbill (*Eretmochelys imbricata*) and green turtles (*Chelonia mydas*). Bermuda's juvenile green turtles have been the focus of a tagging study initiated in 1968 by Dr. H.C. Frick, a trustee of the Caribbean Conservation Corporation. One of the first scientific investigations of this species in their developmental habitat, the Bermuda Turtle Project (BTP) continues today as a joint effort between the Bermuda Zoological Society, the Bermuda Aquarium Museum and Zoo and the Caribbean Conservation Corporation. The project's mission is to further the understanding of the biology of highly migratory, endangered marine turtles in order to promote their conservation both in Bermuda and worldwide.

Since the project's inception, over 2900 juvenile greens have been captured in a 2000 foot long net designed specifically to trap them. They are tagged and studied on board a research vessel before being released at the capture site. This project is also one of the longest-running projects of its kind in the world. Research is carried out on size frequency, sex ratios, growth rates, genetic affinities, habitat preferences, as well as migrations, and has provided new insights into the life history of sea turtles, especially the 'developmental habitat' stage in which juvenile turtles grow from the size of a dinner plate to nearly adult size. Turtles tagged in Bermuda have been recovered in Nicaragua, Panama, Cuba, Mexico, Dominican Republic, Grenada and St. Lucia.

One of the most significant conservation contributions of the BTP is the International Course on the Biology and Conservation of Sea Turtles, which began in 1996 and has been taught for 13 consecutive years, involving 122 people from 33 overseas jurisdictions. The objective of the course is to provide training to university students, biologists, conservation officers and resource managers from countries throughout the Atlantic basin during an intensive two-week course taught in Bermuda on the biology and conservation of sea turtles. Emphasis is placed on understanding how biology impacts management decisions and conservation outcomes. Participants assist in capturing, measuring, tagging, and collecting blood samples from all of the turtles caught. The course provides capacity building for regional management

of these threatened and endangered marine species, as well as allows those individuals that participate to use the knowledge learned to make better conservation and management decisions in their home countries. Participants are also given the opportunity to better understand how to improve monitoring and the collection of data specific to their country that will allow for better decision making. It is only by understanding the biology of all portions of the long and complex life cycles of these animals that holistic management of sea turtle populations can be developed.

The ocean is not the only place where you can find turtles in Bermuda. There are also two different species of terrapins living in the various ponds across the Island; the introduced red-eared slider and the native diamondback terrapin. Sliders are without question the more numerous of the two, and were imported into Bermuda decades ago via the pet-trade industry. Wild populations are now established and reproducing in 20 different fresh water ponds, marshes, and canals (they got there through either escape from captivity or deliberate release because they became unwanted as pets). Half of these feral populations occur in nature reserves. This reptile is listed among the top 100 worst alien invasive species on the planet and local conservationists fear that the thousands currently living in these areas are having a negative impact on the plants and animals that share it with them. Some of these protected locations are critical habitats for a variety of rare endemic and native species, several of which are considered endangered. To date, nearly 900 sliders have been trapped and permanently removed from seven different ponds (all in nature reserves) in an effort to control them.

Introduced: Red-eared slider
Photo by Martin Thomas

Diamondback terrapins, on the other hand, were very recently classified as being a native species. Research using a combination of radiocarbon dating, genetic and palaeoenvironmental data in 2007 revealed that this terrapin is a natural colonizer of Bermuda, having probably arrived on the currents of the Gulf Stream from the Carolinas some time between 400 and 3000 years ago. Unlike the sliders, diamondbacks only reside in three brackish water ponds. The total population is very small (approximately 100 adults), and represents the second naturally occurring non-marine reptile that still survives on Bermuda (the other is the endemic skink). Except for a patchy distribution along the east coast of the USA, Bermuda is the only other place in the world where diamondbacks are breeding in the wild. A baseline population study and a

Native: Diamondback terrapin
Photo by Mark Outerbridge

radio-telemetry tracking study will be done this summer to help determine future management directions for this species in Bermuda.

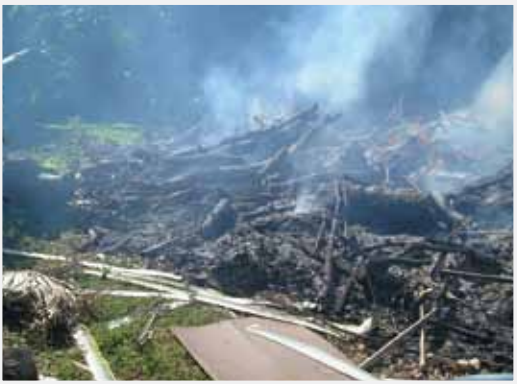
Mark Outerbridge
Coordinator for the Bermuda Turtle Project
Bermuda Zoological Society

BURNING WASTE IN THE BACKYARD

Do you know that you may not burn whatever you want in your backyard? With the introduction of the Clean Air Regulations 1993, it became unlawful to burn anything other than horticultural wastes (tree branches and leaves) without a permit issued by the Environmental Authority. You may not burn trash such as garbage, lumber, paper, plastics, or furniture either on the ground or in a barrel.

Even with the burning of horticultural wastes, there are restrictions. If the smoke disturbs anyone in the neighbourhood, the fire must be extinguished at once.

If you have horticultural waste to get rid of, please consider composting it, chipping it for mulch, or having it trucked to the Marsh Folly Compost Facility. If you do burn it, keep your fire small and hot. Burn only well-dried, brown garden wastes as green leaves do not burn well. Make a small fire with some of your dry wood, and keep adding small amounts to it. If you try to burn a large amount of waste all at once or use wet, green wastes, your fire will be smoky and will be likely to disturb a neighbour.



If a neighbour is burning wastes and the smoke is bothering you, please

contact the Bermuda Fire Service at 292-5555 or 911.

If you have any questions regarding the burning of wastes, please contact Patricia Begeman at the Department of Environmental Protection at 239-2303 or pbegeman@gov.bm.

Smoke from a burn of wet horticultural waste is harmful to health. If a complaint is received, the fire must be put out immediately.

Burning of construction wastes other than in a licensed facility is unlawful.

Patricia Begeman
Environmental Officer
Department of Environmental Protection

VICTORY OVER VEGETABLES

Television continues to play a huge role in getting kids excited about the wrong foods. Our children see fancy hi-tech commercials and they are convinced that they must have the latest junk food. In light of these enticing foods, vegetables may seem to pale in excitement in your child's eyes especially if it is the same old over-cooked broccoli placed before them. Here are a few tips you can try to get your children to eat their vegetables:

1. **Lead by example:** if you're not eating vegetables how can you expect your children to? After all, children mimic what they see. When they are exposed to new foods in a positive way, they will often try them and discover they enjoy new tastes and textures. Eat together and have conversations about food – the tastes, the colours, the smells, the textures. The best way to make sure adults eat well is to help them develop an appetite and the palate for healthy foods when they are young.
2. **Go with the flow:** Although it is unrealistic to expect children to like all vegetables, it is unreasonable to believe that they will not like any. There are so many tastes, textures and colours to explore. What they eat when they are four may be quite different from when they are six – but this is perfectly normal – as long as they get their 5 + portions a day.
3. **Equality:** Treat vegetables like other foods. When you say, "if you eat your

vegetables, you can have some desert", what you are actually saying is that vegetables aren't very nice in their own right and that your child is entitled to a reward when he/she gets through eating them!

4. **Get children used to vegetables from an early age.** Educate your children through books, talks, movies and more about how what we eat directly affects our health, learning ability, mood and appearance. Be consistent; don't give in to resistance or tantrums! When you need to give them a quick snack, think vegetables. Vary the kind of vegetables you buy and be creative. Remember presentation is vital to kids; if it is appealing to the eye then they are more likely to eat it! Encourage and invite your kids to try new foods and celebrate their adventurous eating.

5. **Serve vegetables in a way that little eyes and little hands will relate to!** A whole tomato may be left untouched, but bite sized wedges, an assortment of vegetable shapes created using cookie cutters served with dip, veggie faces; cherry or grape tomatoes are really enjoyable. Make it fun!
6. **Vary the way you serve the food**…If they're not so keen on something cooked, then give it to them raw or vice versa. Try steaming, stir-frying or baking vegetables. Alternatively, if they won't eat their vegetables, perhaps they will drink them. Try making a green smoothie in the blender containing a handful of kale, strawberries, pineapple, frozen banana and water – a perfect toddler snack!
7. **Get your children to help with preparation, produce shopping and start a garden or grow a plant** – Children are more willing to try something new when they pick it out themselves, help to prepare it, have grown it themselves.

Toi Wellman
Assistant Agricultural Officer
Department of Conservation Services

Bermuda Lemon Bread

- 6 tbs. butter or margarine
- 1 cup sugar
- 2 eggs
- 1 ½ cups flour
- 1 tsp. baking powder
- Pinch of salt
- ½ cup milk
- Grated rind of 1 lemon

Cream together the butter or margarine with the sugar. Mix in the eggs, flour, baking powder and salt to make a stiff dough then mix in the milk and lemon.

Bake for 1 hour at 325° in loaf pan or pans. Be sure to fill pan ¾ full of batter.

Remove from oven and while in pan and still warm pour over the top 1/3 cup sugar dissolved in juice of 1 lemon.

If using very small loaves test for doneness after 45 mins.

This recipe makes a very moist and tart bread.

Submitted by Margaret Emmott

Potato Salad

- 6 large potatoes
- 3 boiled eggs
- 1 cup peas and carrots
- 4 heaped tbs. mayonnaise
- 1 tsp. seasoning salt
- 2 tsp. onion powder
- ½ tsp. black pepper

Peel and cut the potatoes into cubes. Add a little white salt and cook on medium head until done but still firm. Drain and set aside in bowl.

Chop eggs and add to potatoes.

Add peas and carrots.

Season to taste with seasoning salt, onion powder and black pepper.

Add mayonnaise and stir well.

Put in fridge until ready to serve.

Submitted by Jennifer Bulford

PLANTING CALENDAR – WHAT TO PLANT IN SUMMER...

June
Beans, Cucumber, Squash, Tomato

July
Beans, Carrots, Tomato

August
Beans, Broccoli, Brussel sprouts, Cabbage, Carrots, Kale, Leeks, Mustard Greens, Pepper, Radish, Rutabaga, Tomato

THE 'ST DAVID'S' CENTIPEDE (*Scolopendra subspinipes*)

As many older Bermudians can tell you, this large centipede, known locally as the St. David's Centipede but also called the Tropical Centipede, has roamed the island for many years. Many less well-informed people believe that this carnivorous beast is confined to the St. David's area. It is possible that the initial introduction of the centipede may have been in St. David's which led to the creation of this title. Due to fast, modern methods of travel however, this centipede has long since turned in its passport in favour of experiencing the far reaches of the island. Individuals or nests of centipedes can easily hitch rides around the island via the efficient trash collection system or on horticultural waste collected from parks or woodland areas. This has meant that the St. David's centipede should not be regarded as being only an 'East End' problem.

Centipedes feed on small insects and in most cases are regarded as being beneficial to the gardener. The centipedes commonly found in the garden are appropriately named Garden Centipedes. These are approximately two to three inches long and should not be confused with the much larger Tropical Centipede, as the Garden Centipede is harmless. Another of the smaller local centipedes is the House Centipede, similar in size to the Garden Centipede, but with long spindly legs and, as the name suggests, is often found inside the house or similar buildings.

However, it is the largest of our centipedes that attracts the most attention in Bermuda. The Tropical Centipede has powerful pincers under the head that contain venom used to subdue their prey and they will use them to give a painful "bite" if provoked. The bite is said to be similar to the average bee sting and does not pose any serious health risks for a healthy adult, but some individuals (the elderly, young or unwell) may be sensitive to bites of this sort and need to seek medical advice.

This centipede is mostly nocturnal, but may be seen in the daytime if it has been disturbed. It feeds on small insects, spiders and occasionally earthworms. Tropical Centipedes prefer to reside and make nests in damp, cool, protected areas such as under leafy debris, log piles, in old Bermuda walls and wild woodland areas. Any old tree stumps or unkempt garden areas are good homes for centipedes. They may enter into houses in search of a dark, cool place to hide. Clearing out untended garden areas and removing stones and dead vegetation will reduce the chances of centipedes finding suitable homes in these areas. Centipedes have also been reported to make nests in abandoned piles of building sand.

Keeping plants and shrubs away from the outside of the house will reduce the likelihood of these centipedes entering the house. Ensure that all window and door screens fit well and are free from holes. Attach flaps to the bottom of doors that do not fit flush to the floor. Although unlikely, if centipedes have become established inside the house, a pest control company may need to be called in to remove them and their nest.

Claire Jessey
Plant Protection Officer
Department of Environmental Protection

ON HER MAJESTY'S SERVICE

GOVERNMENT OF BERMUDA
Ministry of The Environment and Sport

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