

Feedback Form

1. Did you find this booklet useful?

Yes _____ No _____

2. Are you using any of the tips and suggestions mentioned in this booklet?

Yes _____ No _____

3. What new actions have you taken to help in the stewardship of the butterfly, salt marshes and coastal ecosystems?

4. Suggestions and comments?

Returning this feedback form to the following address will help us to better serve our community!

Mail to: Bathurst Sustainable Development

Climate Change Action Center,
237 Main Street, Bathurst, NB, E2A 1C9
Tel: (506) 548-2106
E-mail: rosewood@nbnet.nb.ca

Visit us Saturday mornings at our **Environmental Resource Center** at the Bathurst City Farmer's Market on Main!
www.bathurstsustainabledevelopment.com

Maritime Ringlet Butterfly

Coenonympha nipisiquit



Photo: A. W.Thoma

Help us save this endangered species!

Literature Cited



Photo: City of Beresford

"To stand at the edge of the sea, to sense the ebb and flow of the tides, to feel the breath of a mist moving over a great salt marsh, to watch the flight of shore birds that have swept up and down the surf lines of the continents for untold thousands of years, to see the running of the old eels and the young shad to the sea, is to have knowledge of things that are as nearly eternal as any earthly life can be."

-Rachel Carson-

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Government of Canada. Species at Risk Public Registry. Retrieved from internet : <http://www.sararegistry.gc.ca>. Last Up dated: May 13, 2009.

MacCulloch & Co Ltd. and Summit Rock Developments Ltd.

Maritime Ringlet, Habitat Stewardship, Moving to Community Action. 2004. Town of Beresford.

Natural Resources Canada. Climate Change Impacts and Adaptation Poster Series, the Tides of Change. Information retrieved from website: <http://www.historicplaces.ca/>: http://adaptation.nrcan.gc.ca/posters/ac/ac_11_e.php. Last updated: September 10, 2009.

New Brunswick Department of Natural Resources. Information retrieved from New Brunswick Government website: www.gnb.ca.

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Species at Risk Public Registry. Information retrieved from: http://www.sararegistry.gc.ca/default_e.cfm.

You can practise good land stewardship without donating your land or using other formal protection. Learn about your land and understand how you can contribute to the well-being of your property. The Nature Trust or other organizations might be able to help you with the establishment of conservation goals or objectives for your property.

The Nature Trust of New Brunswick Inc.

404 Queen Street (P.O.Box 603, Stn A)
Fredericton, NB E3B 5A6
Tel: (506) 457-2398
Fax: (506) 450-2137
Email: ntnb@nbnet.nb.net
<http://www.naturetrust.nb.ca/>

Other organizations that can also assist you in protecting or donating your land for protection:

Nature Conservancy of Canada

Atlantic Office

924 Prospect Street, Suite 180
Fredericton, NB E3B 2T9
Tel.: (506) 450-6010
Fax: (506) 450-6013
Toll Free: 1-877-231-4400
E-mail: atlantic@natureconservancy.ca
<http://www.natureconservancy.ca>

Ducks Unlimited Canada

752 Union St.
Fredericton, NB E3A 3P2
Tel.: (506) 458-8848
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<http://www.ducks.ca>

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Have You Seen this Endangered Butterfly?



The Maritime Ringlet

Did You Know?

- The Maritime Ringlet butterfly is a unique species that is found in the Chaleur Bay area and nowhere else on earth!
- The Maritime Ringlet is listed as an endangered species by virtue of the provincial ***Endangered Species Act*** and at a national level by the federal ***Species at Risk Act***. This designation is primarily due to the species' limited geographic distribution.
- Did you know that the Maritime Ringlet butterfly is one of only two butterflies in Canada that is entirely limited to salt marsh habitats?
- Since its discovery in 1939, the Maritime Ringlet is known to live in only 10 salt marshes, six of which are located around Chaleur Bay in northern New Brunswick!

Protect your land forever

The Nature Trust of New Brunswick Inc. is a charitable, non-governmental organization dedicated to conserving New Brunswick's outstanding ecological areas.

As a landowner you can protect your property in perpetuity through several options including land donation, conservation easement, and private land stewardship. The Nature Trust welcomes all proposals for land protection and you are welcome to contact one of our staff for more information.

A donation of ecologically important property to the Nature Trust will ensure that the land will be protected in perpetuity. There are several options for land donation, including:

- ***Gifts of land through donation***
- ***Gifts of land in a will*** -if you are not ready to donate the land in your lifetime, you can leave the land to the Trust in your will.
- ***Life estate*** - you can continue to live on your property and at the same time cede the property for conservation purposes.

Another option for protecting your property is through a ***conservation easement***. A conservation easement is a voluntary legal agreement between a landowner and third party such as the Nature Trust that allows a landowner to place permanent restrictions on certain land uses ensuring the future protection of the land. The landowner retains ownership to the property while the holder of the easement takes on the monitoring and enforcing responsibility to ensure that the provisions of the easement are met.

Furthermore, if your land is ecologically sensitive, its conservation though one of the mechanisms above may qualify for a tax incentive through "***Environment Canada's Ecological Gifts Program***".

Eco-friendly Pest Management

Protecting this unique and fragile butterfly can be as simple as making small changes to your everyday activities.

Eco-friendly gardening is not only great for the environment, but it can also be great for your wallet and using natural options and hardy plant varieties will help you save time, money, and give you a yard the neighbors will envy.

Please follow these eco-friendly tips!

- **Do not apply Bacillus thuringiensis (Bt).** Bt is a spore-forming bacterium that produces crystal proteins which are toxic to many species of insects. Bt may be considered a natural pesticide but it is still dangerous to the butterfly's larvae and its survival.
- **Do not use chemical fertilizers.** Instead use compost and biodegradable products. For example use soaps and detergents that do not contain phosphates.
- **Start Composting.** Composting kitchen leftovers instead of using commercial fertilizers will avoid chemicals leaching into the butterfly's habitat when it rains. Chemicals threaten the butterfly's survival.
- **Encourage natural mosquito defense.** Encourage practices such as leaving spider webs intact and encouraging more birds and dragonflies to your area. These are natural predators of mosquitoes.
- **Use a Screen Room.** Using a screen room, tent or putting screen on your porch windows will help you to protect yourself from biting bugs and will make outdoor living near a salt marsh habitat more enjoyable during peak mosquito season rather than spraying chemicals to kill mosquitoes.

- The Chaleur Bay sites are amongst the most important sites for the Ringlet in terms of population size. The largest site is found at the mouth of the Peters River in Beresford.
- Three other colonies also exist near Bathurst: Daly Point, Carron Point and Bass River.

Why Does it Matter if We Save this Butterfly?

- Species such as the Maritime Ringlet are part of the biodiversity and genetic diversity of our planet.
- The butterfly is also an indicator species that informs us of the general health of the salt marsh ecosystem since the butterfly depends on the marsh for its entire life cycle. If the salt marshes fail to be healthy enough to allow this endangered species to survive, then it is an indication to us that there has been a dramatic change in the salt marsh.
- Every day human activities and development result in the loss of critical habitat for species at risk.



Figure 1: Salt Marsh in Bathurst Area
Source: Terri MacDonald

What is Being Done to Save this Endangered Species?

Efforts are underway by the Recovery Team and conservation groups to increase public awareness about the need for public participation in stewardship and help to save this endangered species. The recovery team also conducts population counts to monitor population rates and life cycles, and to assess the condition of the salt marsh habitat.

Recently, efforts have been successful to introduce the species to additional habitat salt marsh areas in less vulnerable flood-prone coastal areas in Northern New Brunswick. A colony near Caraquet, for example, appears to be productive.

The Province of New Brunswick is also working to help increase protection for critical coastal habitats and, in 2002, adopted Phase I of “A Coastal Areas Protection Policy for New Brunswick”. It is hoped that this policy will increase protection for coastal salt marshes.

Description

The Maritime Ringlet is a tan coloured butterfly that has an eye-like spot on its front wings. This spot is more widespread on females.

The front wings' color fades out to a light gray at the rim, while the back wings present this faded color on their entire surface. Male butterflies darken as they age. The Ringlet's wingspan is approximately 3.5 cm.



Figure 2: Maritime Ringlet
Source: Department of Natural Resources

Landscape Management Options

The landscape management options we choose can make a vital difference to the butterfly's survival.

- **All construction must respect the coastal area,** the marsh and the buffer zone. Buildings should be situated far from the marsh, leaving enough space for a buffer zone.
- **Clean and maintain your septic tanks.** They should be at a distance from the water and must be in good working condition and inspected and cleaned regularly.



Figure 16: Peter's River
Source: City of Beresford

- **Restore your buffers!** Planting indigenous species like Beach Grass and Sea-lyme Grass to fight erosion instead of building artificial structures will protect natural ecosystems and critical habitats.
- **Do not park vehicles next to a salt marsh,** they may leak oil which can pollute the marsh and threaten the butterfly.

How Can You Help Save the Butterfly and its Salt Marsh Habitat?

- **Never fill in the marsh**, instead protect it and help save this endangered butterfly and many other species!
- **Do not drive your truck, ATV or motorcycle in the marsh, on the dune, or on the beach.** You may destroy the salt marsh plants that are the butterfly's food source.
- **Do not burn grass** near the marsh and rivers.
- **Do not dump** fill, garbage or other refuse in marshes. Report all illegal dumping.



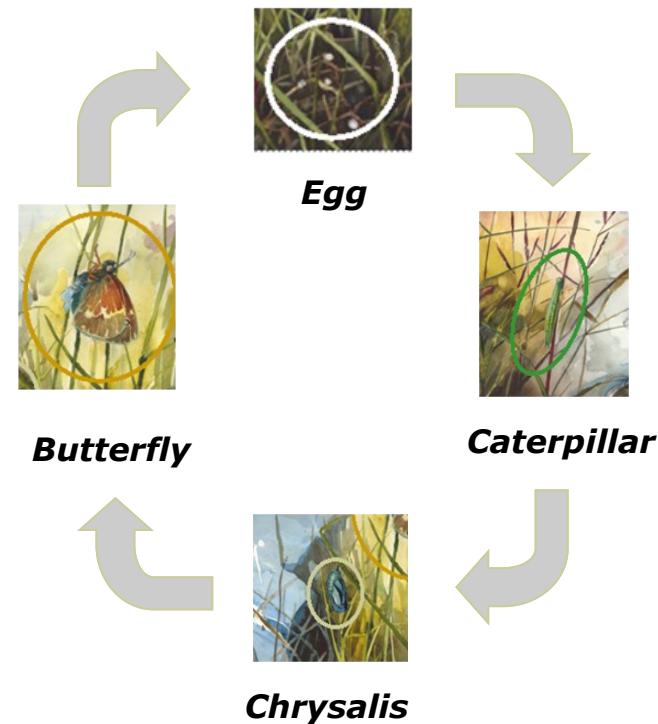
Figure 15: Peter's River
Source: City of Beresford

- **Do not pick wild flowers** such as Sea Lavender and Salt-meadow Cordgrass, because they are essential to the butterfly's life cycle.
- **Do not go in the marsh** if you do not need to because it will disturb the butterfly's sensitive habitat.
- **Leave dead trees and branches in the buffer zone** for insects and other animals that would not otherwise have a place to live.

Maritime Ringlet Life Cycle Stages



Figure 3: Maritime Ringlet Lifecycle
Source: Réjean Roy



Habitat Requirements

Habitat Description

This insect is part of the Lepidoptera taxonomic group. The habitat requirements of the Maritime Ringlet have been well documented (Webster 1994b, 1995, 1996). The species is generally limited to salt marshes but occasionally makes use of neighbouring habitats.

The most common plants in sections of marshes occupied by Maritime Ringlets are: Sea-lavender (*Limonium nashii*), Salt-water Cord Grass (*Spartina alternifolia*), Seaside Plantain (*Plantago maritima*), Salt-meadow Grass (*Spartina patens*), Sea-milkwort (*Glaux maritima*), Seaside Goldenrod (*Solidago sempervirens*), and Eged's Silverweed (*Potentilla egedii*).



Figure 6: Maritime Ringlet on Sea Lavender
Source: Town of Beresford

The Maritime Ringlet is dependent on Sea-lavender and Salt-Meadow grass for food and as host plants for larvae. Ringlets need both of these plants to survive and reproduce. Seaside Goldenrod, Sea-milkwort, and Silverweed are also important food sources for adult Maritime Ringlets.



Figure 4: Salt-meadow Grass
Source: Linda Lee



Figure 5: Sea-milkwort
Source: J. R. Crelin



Figure 7: Seaside Goldenrod
Source: W.J. Hayden

Why Should We Restore a Buffer Zone?

Coastal buffer zones protect sensitive salt marshes such as those around Chaleur Bay which are critical habitat for the Maritime ringlet butterfly. You can create a buffer zone by planting plants that are native to this region. Or, you may simply stop mowing the natural vegetation and allow it to grow.

Case study: Given the importance of the Peters River marshes to the survival of the Maritime Ringlet, and to set an example, the Town of Beresford, New Brunswick, has taken the initiative to stop mowing the grass on the marsh side of the town's beach and has also planted bushes and Beach Grass in sensitive areas.

Some examples of the plants which have been used to restore Beresford's salt marsh and sand dune are: Beach Grass, Canadian Elder, Dogwood, Broad-leaved Meadow-sweet, Northern Bush Honeysuckle, Sweet Gale, Vinegar-tree, Virginia Rose.

You can obtain more information on which native plants to use by talking with staff from your local Department of Natural Resources office or garden center.

The Intergovernmental Panel on Climate Change predicts that global sea level may increase 50 cm by 2100 due to warming of the oceans, melting of glaciers, and other effects.



Much of the coast of Atlantic Canada is highly sensitive to the effects of sea-level rise. The most sensitive coasts (shown here in red) are commonly low-lying, with salt marshes, barrier beaches, and lagoons. They will experience such effects as increased erosion, rapid migration of beaches, and flooding of coastal freshwater marshes.

The Importance of Salt Marshes to the Butterfly

Salt marshes are coastal wetlands located in protected bays and estuaries where fresh water meets the sea. Salt marshes resemble grassy prairies entwined by many streams and ponds. They are also often flooded by tides.

Salt marshes are one of the most productive habitats in the world and also filter the pollutants found in rivers, lakes and oceans. In addition, salt marshes stabilize coastal banks, reduce flooding and protect the shores against erosion.

The Maritime Ringlet lives exclusively in the salt marshes of Chaleur Bay and nowhere else on Earth!

What is a Buffer Zone?

A **buffer zone** is an area where grasses, bushes and trees grow together and protect the marsh from the direct impact of the land use around it. On a small scale, these buffer zones reduce the impact of storms and flooding to the lands beyond them by absorbing part of the force from meteorological phenomena. This area between land and sea also acts as a feeding and traveling area for many species.

"A Coastal Areas Protection Policy for New Brunswick" recommends that buffer zones be at least 30 metres wide to maintain the coastal marsh's integrity. The larger the buffer zone, the better it will be at protecting its sensitive habitats.

Threats

The Maritime Ringlet faces many threats that are of natural as well as human origin.

Storms - All stages of the life cycle of the butterfly (egg, larva, chrysalis or adults), can be impacted or destroyed during seasonal storms.

Ice scouring - During winter storms sea ice is often dragged across the coastal marsh areas and this can destroy the butterfly's habitat. Ice can also interrupt the butterfly's sensitive life cycle. When pushed into the marsh during a winter storm, it crushes the dormant larvae, thus decreasing the butterfly's numbers.

Flooding - The butterfly depends on salt marsh plants such as sea lavender as the primary food supply. Flooding of salt marsh habitats can deprive the butterfly of its food source and its ability to survive! Sometimes flooding of salt marshes is due to storms or rising sea levels but it can just as easily be caused by manmade infilling, improper road construction, dams and other encroaching human activities.

Urban Sprawl - Expanding and encroaching urban development surrounding salt marshes is another threat to the Maritime Ringlet. Properties on the coastal stretch and around the salt marshes have been greatly sought after as building sites. Consequently, the butterfly's habitat is increasingly reduced and disturbed.

Pollutants - The immature stages of the Maritime Ringlet experience periodic tidal submergence, and it is suspected that they may be affected by pesticides that may have washed into the water from nearby lawns. Marsh water may also be contaminated by lawn fertilizers, septic system leachate and many other residential and industrial sources of pollution. Water pollution is a real threat to the butterfly's larva and chrysalis. Human activities near the marsh accentuate the risk of water contamination with harmful products like oils, pesticides or detergents.

Given the species' restricted range and relatively low population size, the loss or degradation of the Maritime Ringlet habitat could result in extinction of this species.

Distribution and Population



Figure 8: Canadian Distribution of the Maritime Ringlet (shown in red)

Source: Species at Risk Public Registry

The New Brunswick sites are grouped around Chaleur Bay and have a combined area of only 350 ha. The remaining locations are located in the eastern part of Québec

The population at Daly Point was estimated at 9,500 butterflies in 1994. An estimated 6,500 Maritime Ringlets were counted at Peters River in 1995. The Carron Point population is much smaller than those at the other two sites; estimates range from a few dozen to 500 butterflies.

Help us save the Maritime Ringlet!

If you have seen this butterfly on your land you can help participate in a monitoring and recovery plan which will help with its survival by reporting sightings to:

Department of Natural Resources, Fish and Wildlife Branch, (506) 453-2440 or the Regional DNR office at (506) 547-2075.

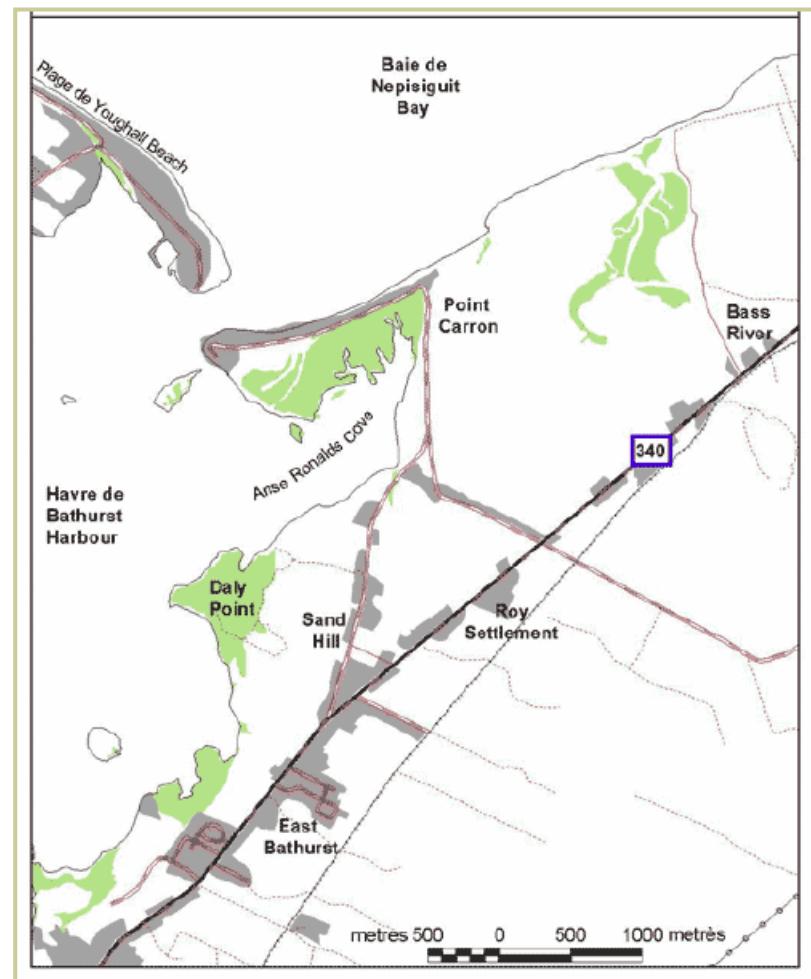


Figure 14: Locations of Daly Point, Carron Point and Bass River Sites, Maritime Ringlet Populations

Source: Department of Natural Resources

Green shading indicates salt marsh. Grey shading indicates development (residential or commercial) areas.

Maritime Ringlet Habitats in the Bathurst Area

Peters River

Location: Beresford & Bathurst, Gloucester County
Area of potential habitat (salt marsh): 156.4 hectares

The Peters River site is composed of an extensive system of salt marshes located at the estuaries of a number of small streams or rivers flowing into Nepisiguit Bay north of Bathurst Harbour. (Figure 13). The marsh system is approximately 6 km long, bounded by the Millstream River in the north and Peters River in the south, and is located behind a barrier beach system (Beresford and Youghall Beaches).



Figure 9: Salt marsh at Peters River
Source: Department of Natural Resources

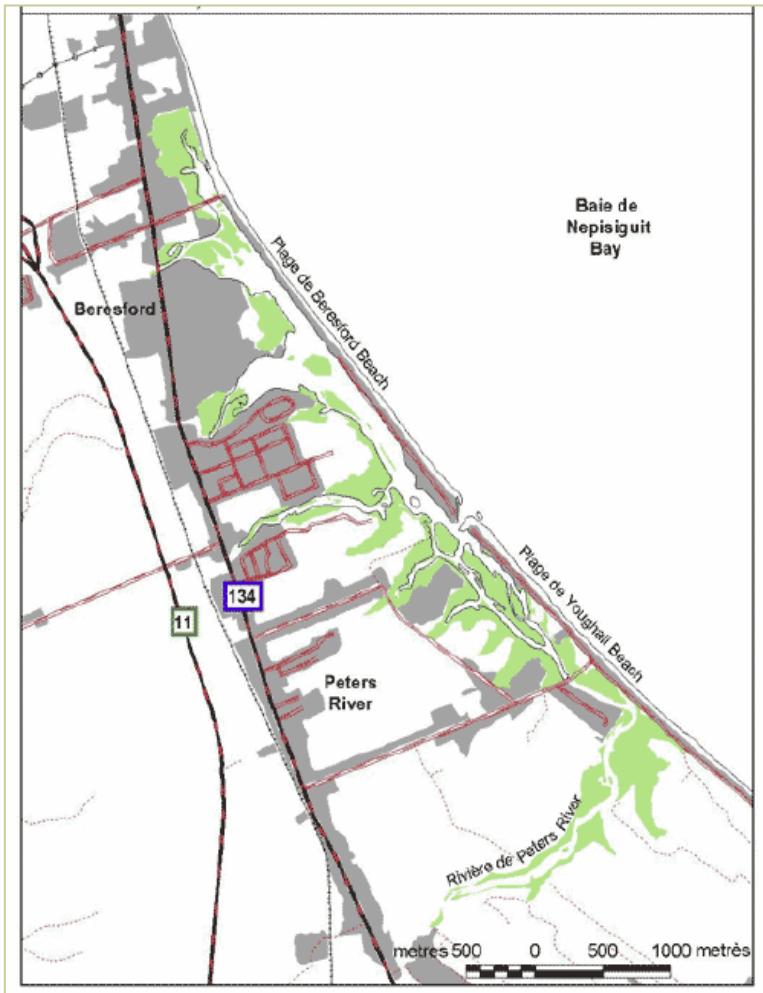


Figure 13: Location of Peters River Maritime Ringlet Populations

Source: Department of Natural Resources

Green shading indicates salt marsh. Grey shading indicates development (residential or commercial) areas.

Daly Point

Location: Bathurst, Gloucester County
Area of potential habitat (salt marsh): 29.4 hectares



The Daly Point site, which includes the salt marshes was designated by the City as a local historic site in 2007. Its official name is The Daly Point Nature Reserve.

Figure 10: Image of Daly Point taken from the "Salt Marsh Trail".

Source: Canada's Historic Places

The Daly Point site is a small salt marsh located on the east side of Bathurst Harbour. Although it is exposed to the harbour, it is somewhat sheltered from the waters of Nepisiguit Bay by the barrier beach at Carron Point, located 1 km north of the marsh. The site is entirely within the City limits of Bathurst. The marsh, as well as much of the property surrounding it, is owned by the city and operated as a local historic site as the Daly Point Nature Reserve. The lands adjacent to the marsh are undeveloped.

Carron Point

Location: Bathurst, Gloucester County

Area of potential habitat (salt marsh): 41.3 hectares

The Carron Point site is a small salt marsh located on the northeast side of Bathurst Harbour, near its entrance. Although exposed to the harbour on the west and south, it is protected from the waters of Nepisiguit Bay by a barrier beach.



Figure 11: Carron Point
Source: City of Bathurst

The site is entirely within the city limits of Bathurst. Over half of the marsh is owned by Ducks Unlimited Canada. The barrier beach along the northern edge of the marsh is bisected by a road, and the northern side of the road is an extensively developed residential area.

Bass River

Location: Bathurst, Gloucester County

Area of potential habitat (salt marsh): 32.7 hectares



Figure 12: Bass River Salt Marshes
Source: City of Bathurst, 2002

The Bass River site is a small salt marsh located on the estuary of Bass River, on Nepisiguit Bay approximately 3 km east of the entrance to Bathurst Harbour. The marsh is located behind a narrow barrier beach. Property ownership consists of small private holdings, and the area is largely undeveloped.

Very little is known about the Bass River site. The Maritime Ringlet was apparently not observed during a survey there in 1970. However, many hundreds were sighted during surveys in 1995 and 2002.

Interesting Facts

Atlantic storms are becoming more and more frequent. During the last decade, the number of tropical cyclones has increased radically. These meteorological phenomena have a direct impact on the coastal landscape. Sensitive habitats, such as salt marshes, can be highly disrupted by these natural forces. The presence of a buffer zone near these wetlands helps absorb part of the destructive forces brought on by these storms. The loss of one salt marsh that is home to the Maritime Ringlet would have a serious impact on the species' survival.