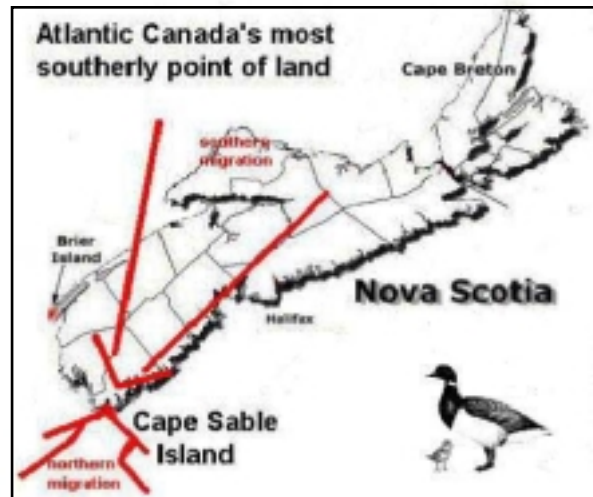


# THE CAPE SABLE IMPORTANT BIRD AREA

Cape Sable, Nova Scotia, Canada

## Conservation Concerns and Measures



May 2001

In co-operation with  
The Cape Sable Local Action Committee

**Acknowledgements:**

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## 1.0 Introduction

It is with joy that this document has been prepared in order to provide a more complete background information for the Cape Sable Important Bird Area. We live in an area of great natural beauty and profound ecological importance. The birds that use our area have done so for millennia. They enrich life for everyone in Cape Sable. The potential for eco-tourism in our area, though limited, does hold out opportunity. This is true only as the people of this area protect and cherish the habitat which makes it possible. Eco-tourism presents its own worries, but it is only as we accept the challenge as good stewards of the natural environment that people can bless the birds and the birds can bless the people.

The Important Bird Areas (IBA) program is an international effort to identify, conserve, and monitor a network of sites that provide essential habitat for bird populations (see Section 7.2). The role of the Maritime IBA Program, which commenced in 1999, is to provide groups and organisations such as the Cape Sable Action Group with tools to protect, to conserve, and to monitor important sites that are identified as IBA's under the national program. The program provides assistance to naturalists groups and other organisations to carry out conservation activities, to promote conservation on the ground, to carry out education, and to develop their own approaches to bird conservation. IBA conservation planners facilitate this approach. Documents are written for specific IBA's, outlining conservation concerns, and measures.

It is with this perspective that we established an Important Bird Area Local Action Committee. This initiative will contribute to the overall good of the symbiosis which can exist between us as the dominant human species and the birds.

This present document was written with the co-operation of the Cape Sable Action Committee by Grant Milroy, with comments from Peter MacDonald, Reg Newell, Murray Newell and Clyde Stoddart. Cape Sable Local Action Committee was formed to promote the recognition of the Cape Sable area as an ecologically unique and important area for birds, including a nationally endangered species and other wildlife. The committee seeks to promote the conservation and stewardship of species and habitats in the Cape Sable area by: (1) improving public awareness through interpretative and educational programs and (2) supporting existing conservation programs. The Town of Clark's Harbour and the Municipality of Barrington have both contributed financially to this project and the committee is actively seeking other funding.

## 2.0 IBA Site Information

Site identification number: CANS016G

### 2.1 *Site Description*

Cape Sable is Nova Scotia's most southerly land area and one of the most southerly in Canada, and therefore is of considerable ecological interest. It lies on about the same latitude as the city of Hamilton, Ontario and within Canada, only a small area of southern Ontario occupies a land area which is further to the south. As a peninsula, Nova Scotia is a natural south-north land passage for butterfly and bird migration. Occupying as it does the most southwesterly tip of that peninsula Cape Sable is a kind of magnet during both northerly and southerly migrations. Cape Sable is an island, which along with other islands further out into the Gulf of Maine, forms a land ladder which migrating species are able to use before striking out across the expanse of the Gulf of Maine. Cape Cod is about 400 kilometers south. Another unique feature is that Cape Sable Island is part of the Atlantic Coastal Plain which is significant botanically. Lakes and barrens with numerous ponds with rather flat terrain, high humidity and acid soils are characteristic of this region.

There was a time when "Cape Sable" referred to the entire area of South Western Nova Scotia. Today, the island named Cape Sable Island is often referred to locally as Cape Island. Cape Sable proper, the sand cape off the southern tip of Cape Sable Island, is referred to locally as the Cape. Its lighthouse is known as the Cape Light. The Hawk is the southern peninsula projecting from Cape Sable Island toward Cape Sable. Sometimes people from away confuse Cape Sable with Sable Island which is well out into the Atlantic Ocean some distance east of Halifax.

The Cape Sable IBA includes beaches, salt marshes and intertidal flats of southeastern Cape Sable Island, the Hawk and "the Cape" proper.

This area consists of Daniel's Head, the Hawk and Cape Sable. This includes the communities of South Side and Lower Clark's Harbour, and the Hawk.

Cape Sable Island covers about 40 sq. km. With a population of close to 4000, most human habitation follows a coastal road that winds along its shoreline, sprawling amongst about a dozen communities. Overall the island is low lying but sloping gently from its rocky western edges toward its eastern beaches. Its interior is made up of Sphagnum bog and scrubby softwoods.

The nearby Baccaro Peninsula and its beaches contribute to the ecological productivity of the whole area. Also, Acadia University owns and conducts an ornithological research station on Bon Portage Island, also known locally as Outer Island. This island lies within eyesight on a clear day to the west of Cape Sable Island. Lying at a distance of some 30 km, is Seal Island which is the last stop off on migration for birds and butterflies headed out across the Gulf of Maine.

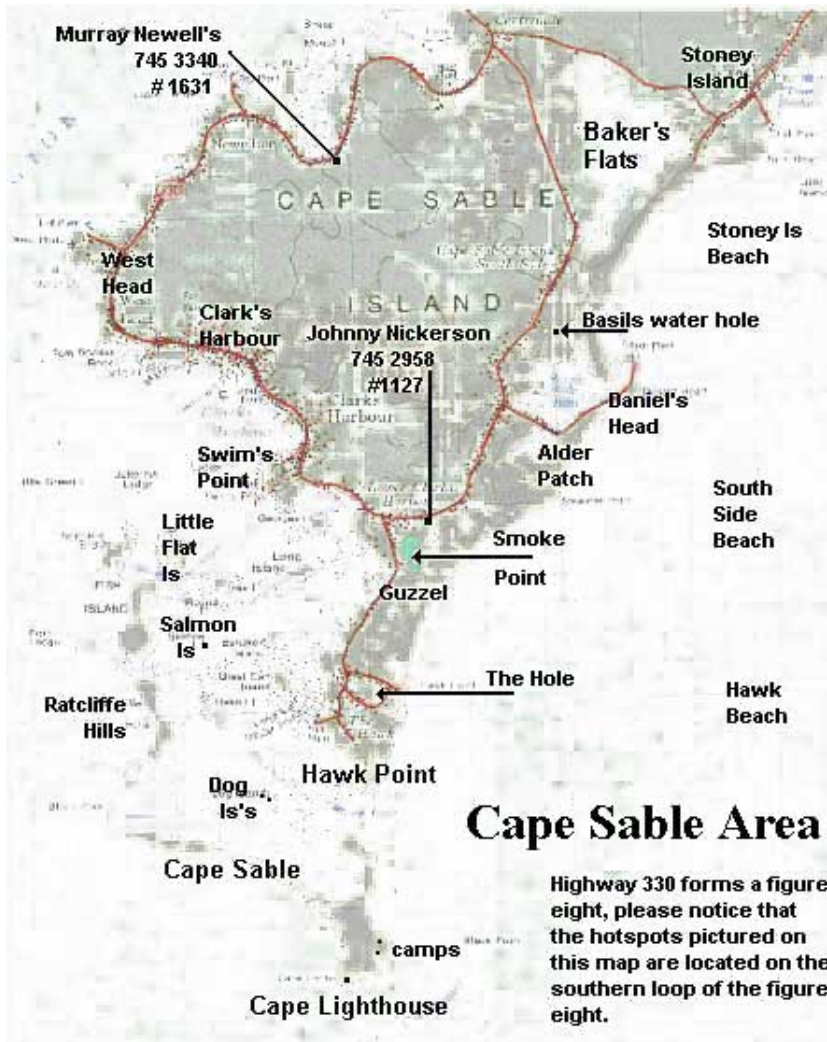
Driving into this area from both directions one passes through fishing villages, wind- and fog-swept salt marshes, intertidal flats and beaches. A side road leads through this type of habitat down to the beaches of Daniel's Head and South Side. These beaches are prime nesting territory for the Endangered Piping Plovers. Feeding Brant, a pair of nesting American Black Oystercatchers and many other bird species use these areas throughout the changing seasons. The same can be said for the side road that leads to the Hawk Beach and a view out across the sand and mud flats between the Hawk and the Cape. As its name implies the Hawk is a peninsula that seems to lead one off the end of the world, but from its end one can look off toward Cape Sable and the highest lighthouse in Nova Scotia. Across these flats, thousands of Brant feed in winter and spring and thousands

of shorebirds fatten in summer and fall. The Cape itself is an island and sand spit, about 5 km long, arching off the end of the Hawk providing protection from Atlantic storms. To venture to the Cape requires a motor boat and when one reaches its sand and dune grass one is treated to the experience of wild ocean skyscape. The cry of the Willet, myriad shorebirds, hawk and butterfly migration, the roar of the surf and the wind leave the senses besieged and overwhelmed.

## 2.2 Map of the IBA Site



The Greater Cape Sable Area



### 2.3 IBA Species Information

No other IBA site in the Maritimes has so many species (five in total) that meet the IBA criteria: the Atlantic Brant (globally significant), the Semipalmated Sandpiper (globally significant), the Semipalmated Plover (globally significant), the Short-Billed Dowitcher, (globally significant) and the endangered Piping Plover (nationally significant). Globally or nationally significant means that at least 1% of the global population or national population of a given adult population found at a site.

**Table 1 Threshold Numbers needed to meet IBA Criteria**

| Species                       | Global | National | Individuals recorded at Cape Sable |
|-------------------------------|--------|----------|------------------------------------|
| <b>Piping Plover</b>          | 59     | 4        | 11-14 (1997 -2000)                 |
| <b>Atlantic Brant</b>         | 3056   | 200      | 5,000-8,000 (1997)                 |
| <b>Semipalmated Plover</b>    | 500    |          | 2,731 (1994-1996)                  |
| <b>Short-Billed Dowitcher</b> | 1000   |          | 15,000 (1995)                      |
| <b>Semipalmated Sandpiper</b> | 20,000 | 15,000   | 250,000 (1993)                     |

*(Data courtesy of Bird Studies Canada)*

#### The Piping Plover

The Piping Plover (*Charadrius melodus*) was designated as endangered in 1985 by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). COSEWIC determines the status of species based on scientific information (Bell 1987, please refer to section 6.1 for more information on Piping Plovers). The international Piping Plover census in 1996 counted 5,913 breeding adults in North America (Plissner and Haig 1996).

Resources and the Canadian Wildlife Service (Atlantic Region), with the help of local naturalists, conduct an annual census of beaches on the South Shore of Nova Scotia. The numbers of paired Piping Plovers, single birds, and successful fledglings have been recorded over several years in this area (see table below for the last five years of data, courtesy of CWS Atlantic Region).

Under the Nova Scotia Provincial Endangered Species Act, as of June of 2000, Piping Plovers and their nests are protected. Biologists with the Nova Scotia Department of Natural



**Table 2 Numbers of Piping Plover at Cable Sable between 1995 and 2000**

| Year | Southside (Daniel's Head) |        |         | The Hawk |        |         |
|------|---------------------------|--------|---------|----------|--------|---------|
|      | Pairs                     | Adults | Fledged | Pairs    | Adults | Fledged |
| 2000 | 6                         | 12     | 7       | 1        | 2      | 0       |
| 1999 | 6                         | 12     | 11      |          |        |         |
| 1998 | 4                         | 8      | 4       | 0        | 0      | 0       |
| 1997 | 3                         | 6      | 7       | 1        | 2      | 0       |
| 1996 | 3                         | 6      |         |          | 1      | 2       |
| 1995 | 3                         | 6      |         |          | 1      | 2       |

About half of Nova Scotia's Piping Plover pairs nest in Shelburne County and of those almost half nest on the beaches of Cape Sable. Last year, seven pairs nested on the beaches of South Side and the Hawk; one pair at Stoney Island and one pair on the Cape beach. This is one of the two most important areas for Piping Plover in Nova Scotia with over 2% of the Atlantic Canadian population of Piping Plovers.

### **The Atlantic Brant**

The Cape Sable Important Bird Area is globally significant for the Atlantic Brant. In late winter and early spring, thousands of Brant congregate on the flats of the Hawk Channel, with a high count of 8,000 recorded in April 1997. Bird Studies Canada states that this represents about 6% of Atlantic Brant population.

At the peak of the winter and spring season, 5000 Brant congregate each year on the Hawk and Daniel's Head flats to feed on the Eelgrass (*Zostera marina*).

### **Semipalmated Sandpiper, Short-billed Dowitcher, and Semipalmated Plover**

The draft plan of the Atlantic Canada Shorebird Conservation Plan Working Draft (Boates et al. 2000) recognises Cape Sable as an important feeding and staging area for shorebirds. Since the 1970s, Cape Sable has consistently been an area of high importance for migratory shorebirds during their southward migration. Out of 76 sites surveyed in Atlantic Canada in 2000 Cape Sable ranked fourth in numbers of Semipalmated Sandpipers during the fall migratory period and constitutes the second most important area for Semipalmated Sandpipers in the province of Nova Scotia.

In July 1993, an amazing one quarter million Semipalmated Sandpipers were estimated to be at Cape Sable Island. From 1994 to 1996, an average of 2,731 Semipalmated Plovers, more than 1% of the estimated global population, were recorded at Cape Sable. In July 1995, 15,000 Short-billed Dowitchers were recorded. At the height of each summer, at least 10,000 shorebirds can be seen using the Hawk Flats as a major feeding and staging area on their southward migration (Courtesy of Bird Studies Canada).

### **3.0 Other Elements of High Conservation Value**

#### **Other Non-IBA Shorebird Species**

Cape Sable is also notable for the wide diversity of shorebird species that use it as a migratory stopover. As many as 15 shorebird species feed in this area. Six species of shorebirds presently experiencing serious population declines use the mudflats of Cape Sable (Ruddy Turnstone, Red Knot, Sanderling, Least Sandpiper, Short-billed Dowitcher and Red Phalarope) as well as five species showing relative stability in their populations in Atlantic Canada (Semipalmated Plover, Black-bellied Plover, Willet, Pectoral Sandpiper and Dunlin) Cape Sable rates as the single-most important coastal staging area for those eleven species of migratory shorebirds in Atlantic Canada (Peter Hicklin pers. comm.).

Black-bellied Plovers frequent the site, with a three-year average (1985, 1987 and 1995) of 504. Maritime Shorebird Survey results show that thousands of Sanderlings and hundreds of Ruddy Turnstones, Least Sandpipers, White-rumped Sandpipers and smaller numbers of Greater Yellowlegs are also found at this area (Courtesy of Bird Studies Canada).

As the season progresses the numbers and different species ebb and flow. Flocks of birds ready themselves for departure to the south. Such a launching area is of strategic importance for the survival of these species.

Several hundred shorebirds overwinter on the Hawk Flats. Murray Newell estimates typical February numbers to be around: 200 Sanderlings, 35 Black-bellied Plovers, 60 Red Knot, 25 Dunlin, and 300 Purple Sandpipers.

(Please see the appendix for details on a shorebird count in July of 2000)

#### **Nesting Shorebirds**

Two pairs of American Black Oystercatchers have nested successfully at the Cape since 1999 (Boates et al. 2000). Also, small numbers of Spotted Sandpipers, Semipalmated Plovers and larger numbers of Willets are known to nest in the Cape Sable area (Erskine 1992).

#### **Other Bird Species**

Cape Island draws birders from around the world. Numerous rare and accidental sightings are reported each year, especially during spring and fall migration. In the fall, winter and spring, a diversity of waterfowl use Cape Sable. Endangered Harlequin Ducks are sighted during the winter months. During storms, pelagics are often seen in large numbers including shearwaters, jaegers, Dovekies, Northern Fulmars, Northern Gannets and petrels. Egrets, cormorants, and Black-crowned Night Herons are observed in summer. Terrestrial bird diversity is equally rich: warblers, vireos, tanagers, and sparrows are all typical migrants. When the weather is exceptionally stormy and migrants are thrown off course, unusual sightings sometimes occur. For instance, in the fall of 1998 during a major fallout, 500 Indigo Buntings, 4 Kentucky Warblers, 20 Hooded Warblers, 4 Worm-eating Warblers and 20 Blue Grosbeaks were amongst the thousands of birds seen (Courtesy of Bird Studies Canada 2000). It is also noteworthy that Roseate Terns have nested on Salmon Island near the Cape.

#### **Botanizing Cape Sable Island**

Cape Sable Island is part of the Atlantic Coastal Plain where plants from the coastal plain of the United States managed to establish themselves following the last ice age. The plants are believed to have persisted during the last

glaciation may have moved northward over the exposed coastal plain while the glaciers retreated northward. They are known as disjunct populations and in some cases are recognised to be rare or threatened in Canada. The interior bogs of Cape Sable Island are home to many of the representative flowering plant species typically found in coastal bogs. White Fringed Orchid (*Habenaria blephariglottis*), Blue Eyed Grasses, Grass Pink (*Calopogon tuberosus*), *Arthusa* (*Arethusa bulbosa*) are common (Roland & Smith 1969).

(Please see the appendix for a list of plant species)

### **Butterfly Migration**

The fall Monarch migration funnels through the Cape Sable area to Bonne Portage. Large high-flying dragonflies also pass through the area in the fall (Brunell 1997). Other migratory butterfly species include the Red Admiral. Little is known locally about this phenomenon and more understanding is needed. It is an awesome experience to watch such fragile creatures brave the distances as they set off out over the Gulf of Maine.

## **4.0 Land Ownership and Use**

The people of Cape Sable are fisher folk who have wrested a living from the sea for many generations. Their traditional way of life has gradually yielded to encroaching modernisation. The single biggest change for the island way of life was the construction of a causeway in 1948.

Since the time of European settlement, the beaches, salt marshes and intertidal flats have been used by the public. As a result, it is necessary to raise the awareness of the general public to the issues of habitat stewardship and environmental care for these areas. Racing four-wheelers, shooting shorebirds, waterfowl hunting, running dogs, walking, swimming, picnicking, and sun bathing all negatively impact our Piping Plovers.

It is vital to develop good relationships with the local landowners. This is particularly relevant for Piping Plover nest sites, including the Stoney Island, Daniel's Head and Hawk Beach area's of Cape Sable Island. The Crown owns the land up to high water mark on the beaches, but for the most part, from there back to the land is owned by private land owners. Any help these people can be is of great value.

## 5.0 Conservation Concerns

### Piping Plovers

Although Piping Plovers are dealt with in some detail in this document, it is good to summarise the concern related to this species.

These little birds are Endangered and in a state of decline. They arrive in April and leave by September. During that time they perform courtship, incubation, and fledge their young getting them ready for southern migration toward coastal beaches in the southern United States and the Caribbean. Nova Scotia has experienced continued declines in Piping Plover numbers in recent decades, but increased fledging success resulting from recovery efforts in Shelburne County may be responsible for a recent increase in the number of breeding pairs in the area, i.e. 14 breeding pairs in 1997 and 20 breeding pairs in 2000 (Pers. com. with Peter MacDonald).

Human disturbance from recreational use of the beaches is one of the main causes for the decline of Piping Plovers (Flemming et al. 1988 & Burger 1991). During nesting, and while the chicks are still young, they are extremely vulnerable to disturbance. People, or their uncontrolled pets can cause nests to be abandoned or young birds to be injured and killed. Young have to feed constantly to increase the energy reserves needed for their fall southward migration. Too much disturbance greatly reduces their chances of survival (Burger 1987, Shaffer and Laporte 1992).

Storm tides, predators, dogs, or inattentive humans sometimes destroy nests before the eggs hatch. When nests are destroyed plovers often re-nest close by. The young hatched from these late nesting efforts are not able to fly until late August. Unleashed dogs on the beaches are able to kill or harass baby Piping Plovers before they fledge.

The most vulnerable period, as adults care for and raise their young, coincides with potentially heavy disturbance through increased numbers of people on the beach. Natural events such as high tides in the spring can flood nests (Strauss 1990, Patterson et al. 1991, Shaffer et Laporte 1992 ). In some areas, natural habitat changes, such as increased vegetation cover, can make beach areas unsuitable for nesting. Developments such as cottages or campgrounds in coastal areas decrease habitat availability to the birds for nesting and feeding. Vehicles such as ATV's on the beach can destroy nests and young (Strauss 1990, Melvin et al. 1994), and seriously disturb the birds (Cairns and McLaren 1980, Patterson et al. 1991). It is illegal to use vehicles on the provincially designated protected beaches in Nova Scotia. Human presence on beaches may increase the numbers of natural predators of the Piping Plover, such as foxes, skunks, racoons, crows, and gulls. Garbage left on beaches is not only unsightly, it also attracts predators that may then eat young birds or eggs (Strauss 1990).

### Atlantic Brant

More than any other goose, Atlantic Brant are subject to periodic breeding failures and heavy losses from starvation because of their strong dependence on certain food plants such as Eelgrass and because some populations live in harsh environments. In the 1930's the Brant population went through a serious population crash. Their main source of Eelgrass was almost wiped out by a disease. When the Eelgrass grew back and Brant started to eat other plants, their populations increased but not to historic levels.

Because North American stocks are experiencing long-term declines, improved population monitoring, and protection of wintering areas is needed (Reed et al 1998). Pressure from hunting by the Inuit on their breeding range and from Cree in the Hudson

Bay area; from recreational hunting on their wintering range; winter habitat degradation due to industrialisation and recreational use of estuaries serve to threaten their numbers.

### **Dune Conservation**

South Side (Daniel's Head) once supported Canada's highest dunes at over 36 metres above the high water mark, but by 1829, sheep grazing had remarkably reduced the dune system. The same concerns exist today for the Hawk and the Cape. Sheep have lived on the Cape since the arrival of Europeans. Perhaps the day may come when the sheep are no longer needed on the Cape. There is a need to promote the value of the fragile marram grass which stabilises the dune ecology and prevents erosion. Sometimes local four-wheeler users are uncaring of the dune grass and unnecessarily rip up the grass spinning their tires and racing around over the dunes. Also, when vehicles drive over the fragile marram grass, which holds the dunes together, the grass often dies leaving bare sand exposed to winds and creating huge blowout areas.

### **Freshwater Conservation**

The freshwater in the IBA is in small lakes, ponds and the wells that supply drinking water for the people. It is essential to protect the environment from groundwater pollution. Baker's Flats is a freshwater lake behind the Stoney Island Beach. It covers about a hundred acres and provides habitat for migrating waterfowl during spring and fall. The ponds on the Hawk are of a similar nature but much smaller. They provide a source of freshwater for many bird species during most of the year.

As one considers the conservation concerns related to the stewardship of the Cape Sable area, one is confronted with deep spiritual, moral, and educational challenges facing the general public. A deep love for the natural environment fills the hearts of many who live in this area. However, as everywhere, there are

those who need to cultivate a deeper sense of responsibility for their home and its environmental quality. If we do not afford these creatures the safety needed for their well-being, how soon will our safety and well being also be threatened? In fact, at this very moment, it may very well be threatened much more than we even realise. The intrinsic value of our natural heritage is a matter of priority. For this reason a local committee has been set up to spearhead work which will promote the cause of habitat conservation and stewardship of the Cape Sable area. This work will focus upon the birds, seeking to educate the public and develop a sense of local pride in the ornithological wealth that nature provides to the people of the Cape Sable area.

The most apparent threat is to the well-being and reproductive health of the Piping Plovers. Our efforts to improve the lot of all the bird life of Cape Sable improves the potential for eco-tourism as a source of economic diversification. We are all familiar with the sense of horror that arises at the number of whale watching boats, which at times seem to harass the whales. Some bird watchers have been known to do the same to the birds. The general consensus is that the better informed the public is, the better equipped they are to care for the gifts which creation provides for our well-being and economic prosperity. To that end we seek through this small initiative to foster a better understanding of the issues and concerns related to the environmental well being of the Cape Sable area.

**A summary of the environmental threats includes:**

- ✘ predators which feed on the eggs and the young of the Piping Plovers
- ✘ human with four wheelers on the beaches during incubation
- ✘ human harassment of the unfledged juveniles
- ✘ unleashed dogs on the beaches which are able to kill or harass baby Piping Plovers before they fledge and chase the shorebirds as sport
- ✘ high tides which flood the nests and wash away the eggs
- ✘ an oil spill or any similar accident can pollute the intertidal flats which are vital feeding grounds for the Brant and the shorebirds or the beaches where the Piping Plovers feed
- ✘ damage to the dune grass ecology by four wheelers who use the dunes for recreational purposes
- ✘ damage to the marine environment which threatens the food sources of pelagic birds
- ✘ duck hunting in the fall may threaten species such as the Harlequins
- ✘ coastal waste, marine debris

Educational efforts can change the mentality of the general public. Many of these human factors will be greatly reduced, if we strengthen the sense of local pride in healthy bird habitat. We must do our part to get the message out.

## **6.0 Conservation History**

Piping Plover Recovery work has been undertaken under the supervision of Peter MacDonald from the DNR office in Tusket Yarmouth County. Their efforts have included:

- ✓ erecting symbolic fencing (2"x2" posts, string and signs) around nest areas
- ✓ placing predator exclosures (wire cages) over nests
- ✓ providing assistance for CWS banding efforts (The banding program seeks to address our serious lack of information on the fate of juvenile Piping Plovers.)
- ✓ Educational presentations about the Piping Plovers to the children in the local schools
- ✓ Assistance was received from local people in local monitoring and recovery efforts (Clyde Stoddard, who is a member of our local action committee has done this work in recent years)
- ✓ The Nova Scotia Nature Trust in conjunction with DNR have communicated with local landowners in order to promote the cause of the Piping Plovers

Sid and Betty June Smith have counted the shorebirds around the Cape since the mid seventies. They have done this work for the CWS Shore Bird Survey and that information is stored in the CWS data base.

Local people like Murray Newell, a member of our local action committee and Johnny Nickerson are key birders from Cape Island who have done much to promote a knowledge of the birds of Cape Sable. Murray often hosts and guides visiting groups of birders and provides

regular sightings reports for Nature NS a provincial list serve on the internet which reaches far and wide. With the assistance of outsiders a Christmas Bird Count has been conducted for many years. In more recent years local birders and outsiders are taking part in the North American Migratory Bird Count held in the month of May. These local birders are expanding their interests to include butterflies, dragonflies, wild plants, and reptiles.

Lillian Perry from Barrington has provided leadership for the amateur botanists of Shelburne County. She has conducted local plant census work and is helping with the Nova Scotia Nature Trust Atlantic Coastal Plain monitoring program. There is an overlap of interest between the birders and the botanists, but it all serves to raise public awareness of creation care in our area.

The development of good public relations is of utmost importance particularly good relations with the landowners themselves. In this regard, one should know about the work that has already taken place. In 1999, Karen Potter and Minga O'Brien visited and talked with 26 landowners in the above-mentioned areas. This was carried out as part of a pilot project of landowner contacts through the Nova Scotia Nature Trust. In fact, several stewardship awards have been given to people in those areas of Cape Sable Island. During that season they made personal contact with the people concerned and communicated to them the value of their property as it relates to the well being of the Piping Plovers. It is essential for us to build on their good work and continue their efforts.

The RCMP and Conservation Officers with the Department of Natural Resources have made efforts over the years to enforce the duck hunting season regulations. It should be remembered that traditionally eggs, some shorebird species and duck hunting were an important source of food for the people of this

area. The men have traditionally gone duck hunting. Still today they love their duck stews and no one can cook the sea ducks and make them taste as they do. Many do wood carving, and ducks are a favourite subject.

## 7.0 Conservation Measures

Our efforts will build on the efforts that have gone before. Many of the local people are aware of the economic benefit which comes with an abundance of bird watchers. Many in the area are aware of the outside interest which draws people to this area in order to experience the natural wonders of creation.

With that in mind, it is our desire to do more to promote and assist in developing our area as an Important Bird Area. To accomplish this we have undertaken to set up a Local Action Committee. This committee is composed of:

Reg Newell, biologist who grew up in Clark's Harbour and is the Stewardship Coordinator with the Eastern Habitat Joint Venture with DNR in Kentville;

Peter MacDonald, wildlife biologist with DNR in Yarmouth, working on Piping Plover recovery in Shelburne County;

Murray Newell, local birder;

Clyde Stoddard, local birder; and

Grant Milroy, local pastor and naturalist.

We propose a two-pronged strategy focusing on signage and education. Both of these measures target public pride and a sense of responsibility for the well being of the birds of our area.

It is hoped that with good signage, people will realise that Cape Sable is a world class tourist destination. At the same time the signage will help the local people to recognise the birding hotspots and promote this recreational activity which is already being enjoyed by some. We will produce first class interpretative signs which are geared toward education and local awareness of the Piping Plovers, Brant, and shorebirds. It is also our intent to produce a well

thought out system of directional signage to help people find their way around.

Secondly, we will further develop and carry on the educational program which Peter MacDonald has used in local elementary schools. It is also essential that our educational efforts include continued liaison and communication with these people. At the time we install the interpretative signs, we want, with a good brochure, to enlist the goodwill and neighbourhood protection necessary to ensure that these signs are not vandalised. We hope to place attractive materials in the hands of the children and teens. These materials will help them to better understand the birds that use the same areas in which they play.

We want to improve and strengthen this effort with the view of recruiting local youth and adults as Piping Plover Guardians. It is our intention to cooperate fully with a rejuvenated Piping Plover Guardian Program which is sponsored by the Nova Scotia Bird Society. It is vital that we co-ordinate our efforts with theirs and the efforts of DNR. This will involve a first class slide show with accompanying literature and visual aids. It is our belief, that reaching the hearts of the children with this message goes a long way to winning the day for important bird habitat.

It is our intention to begin work on the interpretative and directional signs, with locally donated funds, by the March 2001. If we qualify for more funds we will continue the project with further signage and the development of an educational and coastal guardian program which will include attractive literature. We hope that in the years to come the work of this committee can continue to develop this local initiative. The key contact person from the committee is Grant Milroy.



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## 8.0 Background Information

### 8.1 IBA Species Account

#### **Piping Plover** (*Charadrius melodus*)

The Piping Plover is a sand-coloured, sparrow-sized shorebird that nests and feeds along coastal sand and gravel beaches. The adult has yellow-orange legs, a black band across the forehead from eye to eye, and a black ring around the neck. The average weight of the average adult is 53 grams. It runs in short starts and stops. When still, the Piping Plover blends extremely well with open, sandy beach habitats. The bird's name is derived from its call notes, plaintive bell-like whistles that are often heard before the birds are seen. In eastern Canada, Piping Plovers breed exclusively on beaches along the seashore. They prefer flat beach areas with sand and cobble substrate above the high tide line. Areas used by Piping Plovers generally have little vegetation, however occasionally nests will be built in Marram Grass (*Ammophila breviligulata*).

The species is only found in North America. The plovers migrate south in late summer to winter in Cuba, the Bahamas, Mexico, and the United States along the Atlantic and Gulf of Mexico coasts. Little is known about Piping Plovers in their wintering grounds. The breeding range for the Atlantic Coast population includes beaches in the four Atlantic Provinces, the Magdalen Islands, St. Pierre and Miquelon and along the American coast from Maine to South Carolina.

Piping Plovers return to their nesting areas from mid-April to early May. They establish nesting territories and form pairs. The pair makes a depression in the sand that they may line with small, white pieces of shell. Usually four eggs are laid. After about 28 days of incubation by both adults, the young hatch. Within hours, the downy young leave the nest and follow their parents in search of marine worms, shrimp-like

creatures, and insects that they find in the sand and in the mud. Both the eggs and young blend in so well with their surroundings that they might go unnoticed. When predators or other intruders come close, the young squat motionless on the sand while the parents attempt to attract the attention of the intruders, often by feigning a broken wing. Young are able to fly in about 30 days. Plovers often gather in-groups on undisturbed beaches before their southward migration. By the end of July the first Piping Plovers, usually adults, will leave for their wintering areas.

#### **Brant** (*Branta bernicla hrota*)

The Brant is a small dark goose that is found throughout the northern hemisphere. It has large wings, a short neck, head and bill. Three subspecies are recognised, of which two are found in North America. The Atlantic Brant is distinct and difficult to confuse with other species of geese. They breed around the Fox Basin in the Eastern low Arctic; winter on the Atlantic Coast in the United States, at Grand Manan and on Cape Sable Nova Scotia. Other sub species breed in Alaska and Northwest Territories. Our sub species winters strictly in coastal areas from Massachusetts south to central North Carolina, rarely further south. There are no major changes in breeding range, although small colonies may disappear. During the 1930 a wasting disease caused extensive losses of Eelgrass and resulted in dramatic population declines. When Brant started to eat other food, substantial recovery occurred but not to historic levels. Our Atlantic population showed considerable population fluctuations having recovered from 2 severe winters in the 1970's.

In spring, Brant stage in shallow marine waters within lagoons, or behind barrier beaches in Eastern Canada. Pairs usually arrive on breeding grounds already paired by late May or early June. They nest in grassy meadow usually close to water. Usually 3-5 eggs are laid. Parents lead their young to feeding areas but do not provide them actively with food. The young take about 40 days to fledge. They feed mostly on Eelgrass, green algae and salt marsh plants like cord grasses, upland grasses, and mosses. More than any other goose they rely heavily on Eelgrass (Reed et. Al. 1998.).

**Semipalmated Plover**  
(*Charadrius semipalmatus*)

Very similar to the Piping Plover in plumage except that the back and head is darker. The name “semipalmated” refers to semi (partially) palmated or webbed toes. Sexes are similar, the female being slightly larger. Adults weigh from 35-42 grams, the average weight being about 42 grams (Johnsgard 1981). The Semipalmated Plover breeds in scattered places in Nova Scotia including Cape Sable. The majority of them breed in low and sub arctic regions of Canada. They winter in South America (Erskine 1992). The nest is a depression in sand or gravel. They usually lay 3-4 eggs. Incubation is by both sexes and the young leave the nest and run after their parents almost as soon as they are hatched (Terres 1991). They feed on outer beaches, mud flats of creeks and tidal pools, and ponds in salt marshes, eat marine worms, small molluscs, beach flies small crustaceans, eggs of marine animals, and insects, including larvae of the saltmarsh mosquito (Nol and Blanken 1999 and Terres 1991).

**Short-billed Dowitcher**  
(*Limnodromus griseus*)

A chunky bird with short greenish legs and a long straight bill with a white rump patch extending up back. In spring its body is dark above, white to cinnamon red breast. In winter, it is grey all over (Terres 1991). Males weigh from 91-145 grams and females weigh from 95-140 grams (Johnsgard 1981). In Canada, the range of this species during the breeding season includes: Northwest Territories, Yukon Territory, British Columbia, Alberta, Ontario, and Quebec. This subarctic species is mainly associated with muskegs or similar boggy and marshy areas having low vegetation. Their nests are usually well hidden with 4 eggs. Incubation is approximately 21 days with both sexes incubating. The female takes little part in caring for the brood. They feed on marine worms molluscs, and insects. Forages by probing while standing in shallow water, or on tidal flats (Johnsgard 1981).

**Semipalmated Sandpiper** (*Calidris pusilla*)

(Based on Gratto-Trevor 1992 and Environment Canada’s Hinterland Who’s Who Series and Terres 1991)

One of our smallest shorebirds weighting from 21-32 grams and measuring from 13-15 cm long, the Semipalmated Sandpiper is difficult to distinguish from other similar sandpipers. The name “semipalmated” refers to semi (partially) palmated or webbed toes. Sexes are similar, the female being slightly larger. During the Canadian winter, these birds are found in northern South America and breed during the summer in sub to mid Arctic areas of Canada and Alaska. Semipalmated Sandpipers leave South America in early to mid May. They make short stops along the eastern seaboard of the US. Food is limited during the early spring in Canada, so migration is rapid. In late summer, flocks of more than 200,000 have been recorded in the Bay of Fundy. Males usually arrive before

the female on the arctic breeding grounds by late May. Both parents share in the incubation of the usual clutch of 4 eggs. Chicks are not fed by their parents. Once hatched and dry, they start pecking for insects. Females leave the brood to the males to look after 10 days after hatching. The Bay of Fundy and Cape Sable act as the most important staging area or refuelling station for sandpipers in North America before they fly to South America. They feed on small molluscs, marine worms, crustaceans such as amphipods, and aquatic insects.

## 8.2 *The IBA Program*

The IBA program is an international initiative co-ordinated by BirdLife International, a partnership of member-based organisations in over 100 countries seeking to identify and conserve sites important to all bird species worldwide. The Canadian BirdLife co-partners are the Canadian Nature Federation (CNF) and Bird Studies Canada (BSC). In the Maritime Provinces the Prince Edward Island Natural History Society, the New Brunswick Federation of Naturalists, and the Federation of Nova Scotia Naturalists sponsor the Important Bird Areas Program.

Through the protection of birds and habitats, they also promote the conservation of the world's biodiversity. There are currently IBA programs in Europe, Africa, the Middle East, Asia, and the Americas.

The Canadian IBA program is part of the Americas IBA program which includes the United States, Mexico, and 17 countries in Central and South America.

*The goals of the Canadian IBA program are to:*

- ▶ Identify a network of sites that conserve the natural diversity of Canadian bird species and are critical to the long term viability of naturally occurring bird populations;
- ▶ Determine the type of protection or stewardship required for each site, and ensure the conservation of sites through partnerships of local stakeholders who develop and implement appropriate on-the-ground conservation plans; and
- ▶ Establish ongoing local involvement in site protection and monitoring.

*IBAs are identified by the presence of birds falling under one or more of the following internationally agreed-upon categories:*

- 1) Sites regularly holding significant numbers of an endangered, threatened, or vulnerable species.
- 2) Sites regularly holding an endemic species, or species with restricted ranges.
- 3) Sites regularly holding an assemblage of species largely restricted to a biome.
- 4) Sites where birds concentrate in significant numbers when breeding, in winter, or during migration.

The *Maritimes Important Bird Areas Program* is a co-operative effort with the New Brunswick Federation of Naturalists, the Natural History Society of Prince Edward Island, and the Federation of Nova Scotia Naturalists. For further information on these organisations, please refer to the appendix.

Conservation plans for a number of sites in the Maritimes are being developed over the next few years in co-operation with interested groups, people, and communities. They are a tool to be used to move towards protecting species and their habitat in the long term. Although the plans are site specific, larger issues can be taken into consideration as well, if they affect the site and the species.

### **8.3 Information on the Lead Organisations of the IBA**

#### ***Federation of Nova Scotia Naturalists***

The Federation of Nova Scotia Naturalists exists to support the common interests of naturalist clubs, and to represent those clubs at the provincial level. Its primary activities include the conservation of species and spaces, education, and the sustainable use of resources (website: <http://www.chebucto.ns.ca/Environment/FNSN/>).

*President*  
*Martin Willinston*  
*Federation of Nova Scotia Naturalists*  
*c/o NS Museum of Natural History*  
*1747 Summer St*  
*Halifax, NS*  
*B3H 3A6*

#### ***New Brunswick Federation of Naturalists***

The Federation is a non-profit organisation formed in 1972 to encourage an understanding of nature and the environment, and to focus concern for the natural heritage of New Brunswick (website: <http://personal.nbnet.nb.ca/maryspt/NBFN.html>.)

*President*  
*Pierrette Mercier*  
*New Brunswick Federation of Naturalists*  
*a/s Musée du Madawaska,*  
*195 boul. Hébert,*  
*Edmunston, NB*  
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#### ***Natural History Society of Prince Edward Island***

The Natural History Society of Prince Edward Island is a naturalist group that is particularly interested in natural history issues and conservation. They record natural events on the island, maintain a bird check list, offer bird identification courses, field trips, conduct bird counts and record unusual or rare sightings.

*President*  
*Ray Cooke*  
*Natural History Society of PEI*  
*8 Shamrock Drive,*  
*Charlottetown PE.,*  
*C1A 7S4*

#### ***BirdLife International***

A pioneer in its field, BirdLife International (BL) is the first non-government organisation dedicated to promoting world wide interest in and concern for the conservation of all birds and the special contribution they make to global biodiversity. BL operates as a partnership of non-governmental conservation organisations, grouped together within geographic regions (e.g. Europe, Africa, Americas) for the purpose of planning and implementing regional programs. These organisations provide a link to on-the-ground conservation projects that involve local people with local expertise and knowledge. There are currently 20 countries involved in the Americas program throughout North, Central, and South America. For further information about BirdLife International, check the following website: <http://www.birdlife.net/>

The Canadian Important Bird Areas Program has been undertaken by a partnership of two lead agencies. The Canadian Nature Federation and Bird Studies Canada are the Canadian BirdLife International partners.

### ***The Canadian Nature Federation (CNF)***

The Canadian Nature Federation is a national conservation organisation with a mission to be Canada's voice for the protection of nature, its diversity, and the processes that sustain it. The CNF represents the naturalist community and works closely with its provincial, territorial and local affiliated naturalists organisations to directly reach 100,000 Canadians. The strength of the grassroots naturalists' network allows CNF to work effectively and knowledgeably on national conservation issues that affect diversity of ecosystems and human populations in Canada. The CNF also works in partnership with other environmental organisations, government and industry, wherever possible. The organisations approach is open and co-operative while remaining firm in the goal of developing ecologically sound solutions to conservation problems. CNF's website is: <http://www.cnf.ca>.

*Christie Chute  
IBA program outreach co-ordinator  
Canadian Nature Federation  
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Ottawa, ON  
K1N 7B7*

### ***Bird Studies Canada (BSC)***

The mission of Bird Studies Canada is to advance the understanding, appreciation, and conservation of wild birds and their habitats, in Canada and elsewhere, through studies that engage the skills, enthusiasm and support of its members, volunteers, staff and the interested public. BSC believes that thousands of volunteers working together, with the guidance of a small group of professionals, can accomplish much more than could the two groups working independently. Current programs collectively involve over 10,000 volunteer participants from across Canada. BSC is recognised nation-wide as a leading and respected not-for-profit conservation organisation dedicated to the study and

understanding of wild birds and their habitats. BSC's web site is: <http://www.bsc-eoc.org/>.

*Rosalind Chaundy  
Technical Co-ordinator Important Bird Areas  
P.O. Box 160,  
Bird Studies Canada  
Port Rowan, ON  
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## **8.4 Information on Organisations and Groups**

The following people and organisations have been identified as having an interest or a direct or indirect role to play in the conservation of Cape Sable:

### ***The Cape Sable Local Action Committee***

Cape Sable Local Action Committee was formed to promote the recognition of the Cape Sable area as an ecologically unique and important area for birds, including a nationally endangered species and other wildlife. The committee seeks to promote the conservation and stewardship of species and habitats in the Cape Sable area by: (1) improving public awareness through interpretative and educational programs and (2) supporting existing conservation programs.

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The purpose of the IBA Fund is to provide funding support for high-priority projects that contribute to the conservation of bird species and their habitats within the Cape Sable Important Bird Area. It will serve as a means of financing the efforts of the Cape Sable Local

Action Committee. It will consist of a local bank account into which funds will be deposited for use by the Cape Sable Local Action Committee.

**The Nova Scotia Bird Society** supports the efforts of the Cape Sable IBA Action Committee. The Society promotes bird appreciation and conservation for at least the last 40 years (website: [www.chebucto.ns.ca/Recreation/N.S.-BirdSoc/](http://www.chebucto.ns.ca/Recreation/N.S.-BirdSoc/) ).

*Nova Scotia Bird Society  
Gisele D'Entremont  
President  
NS Museum of Natural History  
1747 Summer St.  
Halifax, NS  
B3H 3A6*

The **Nova Scotia Department of Natural Resources** is responsible for the creation and administration of wildlife management areas in the province. The Department also promotes and implements the principles and ethics of conservation and sustainable use of wildlife populations, habitats, and ecosystems in Nova Scotia. The Department is responsible for the enforcement of the Wildlife Act and the Endangered Species Act (website: <http://gov.ns.ca/natr/wildlife/index.htm>).

*Sherman Boates,  
Wildlife Manager Biodiversity  
Wildlife Division,  
136 Exhibition Str.,  
Kentville, NS  
B4N 4E5*

*Peter MacDonald  
Regional Wildlife Biologist  
NS Department of Natural Resources  
Peter MacDonald  
Box 99,  
Tusket, NS  
B0W 3M0*

The **Canadian Wildlife Service** is responsible for the Migratory Bird Act. CWS is a member of the Roseate Tern Recovery Team. Monitoring and research on migratory birds such as Roseate Terns is one of the priorities of the CWS. The CWS deals with wildlife matters that are the responsibility of the Canadian government. The role of CWS is twofold: to protect and manage Canada's migratory birds, and to co-operate with the provinces, territories, and Parks Canada in carrying out wildlife research and management projects within their jurisdictions ([http://www.cws-scf.ec.gc.ca/hww\\_fap/Endanger/table.html](http://www.cws-scf.ec.gc.ca/hww_fap/Endanger/table.html)).

*Head, Endangered Species and Habitat  
Conservation  
Canadian Wildlife Service  
Kevin Davidson  
17 Waterfowl Lane, P.O. Box 6227,  
Sackville, NB  
E4L 1G6*

*Diane Amirault  
Endangered Species Biologist  
Piping Plover Recovery Team  
17 Waterfowl Lane, P.O. Box 6227,  
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*Roland Chiasson  
Chair  
The Atlantic Piping Plover Working Group  
17 Waterfowl Lane, P.O. Box 6227,  
Sackville, NB  
E4L 1G6*

The *Nova Scotia Nature Trust* is a non-government charitable, conservation organisation whose mission is to protect significant natural areas on private land. Formed in 1994, it works at the community level to preserve lands of local, regional, or provincial significance.

*The Nova Scotia Nature Trust*  
*P.O. Box 2202*  
*Halifax, Nova Scotia, Canada*  
*B3J 3C4*  
*Phone (902) 425-LAND (5263)*  
*Fax (902) 429-5263*  
*<http://www.chebucto.ns.ca/Environment/NSNT/join.html>*

***Canadian Ocean Habitat Protection Society***

*P.O. Box 13,*  
*Newellton, Nova Scotia, Canada*  
*B0W 1P0*  
*<http://cohps.atlantisforce.org/>*

## 9.0 Bibliography

- Amirault, D. 1999. Annual Report: Status of the Piping Plover in Eastern Canada. Canadian Wildlife Service, Sackville, New Brunswick.
- Bell, F. H. 1978. Status Report on Piping Plover in Canada. Report prepared for the National Museums of Canada and the Committee on the Status of endangered Wildlife in Canada. 39 p.
- Boates, Sherman, Austin-Smith, Peter, Dickie, Gerald, Williams, Ron, and Sam, Donald. 1994. Nova Scotia Piping Plover Breeding Atlas. Nova Scotia Department of Natural Resources. pp.86. Boates, J. Sherman. Elliot, Richard D., Gloutney, Mark., Hicklin, Peter W., Melanson, Reginald. 2000. Atlantic Canada Shorebird Conservation Plan Working Draft. 82 pp.
- Bowen, A.J. 1975. The Maintenance of Beaches. Institute for Environmental Studies, Dalhousie University.
- Brunell, Paul. 1997. Distribution of Dragonflies and Damselflies (Odonata) of the Atlantic Provinces, Canada, North-Eastern Field Naturalists vol. 4 (2); page 61-82.
- Burger, J. 1987. Physical and Social Determinants of Nest-site Selection in Piping Plover in New Jersey. *The Condor*. 89:811-818.
- Burger, J. 1991. Foraging Behavior and the Effect of Human Disturbance on the Piping Plover (*Charadrius melodus*). *Journal of Coastal research*. 7(1): 39-52.
- Cairns, W. E. and I. A. McLaren. 1980 Status of the Piping Plover on the East Coast of North America. *Amer. Birds* 34(2):206-208.
- Chiasson, R.D. and Dietz, S.D. 1998. The Piping Plover in Eastern Canada. Environment Canada. Canadian Wildlife Service. Flemming, S. P., R. D. Chiasson, P. C. Smith, P. J. Austin-Smith, and R. P. Bancroft. 1988. Piping Plover Status in Nova Scotia Related to its Reproductive and Behavioural Responses to Human Disturbance. *J. Field Ornithol.* 59(4): 321-330.
- Erskine, A.J. 1992. Atlas of Breeding Birds of the Maritime Provinces. Nimbus Publishing Limited and Nova Scotia Museum. 270 pp.
- Flemming, S. P., R. D. Chiasson, P. C. Smith, P. J. Austin-Smith, and R. P. Bancroft. 1988. Piping Plover Status in Nova Scotia Related to its Reproductive and Behavioural Responses to Human Disturbance. *J. Field Ornithol.* 59(4): 321-330.
- Goosen, J.P, et al. 2000. Revised Canadian Piping Plover Recovery Plan. Recovery of Nationally Endangered Wildlife Report Ottawa: Canadian Wildlife Service 50 pp.
- Goossen, J. P., D. L. Amirault, J. E. Arndt, R. Bjorge, J. S. Boates, J. Brazil, S. Brechtel, G. N. Corbett, F. R. Curley, S. p. Flemming, W. Harris, L. Heyens, D. Hjertaas, M. Huot, R. Jones, W. Koonz, P. Laporte, D. McAskill, R. I. G. Morrison, S. G. Richard, L. Swanson, and E. Wiltse. 1999. Unpublished. Revised Canadian Piping Plover Recovery Plan Draft. Recovery of Nationally Endangered Wildlife Report. Ottawa: Canadian Wildlife Federation. 50 pp.
- Johnsgard, P. A. 1981. The Plovers, Sandpipers and Snipes of the World. University of Nebraska Press, Lincoln and London. 493 pp.



- Melvin, S. M., A. Hecht; and C. R. Griffin. 1994. Piping Plover Moralities Caused by Off-Road Vehicles on Atlantic Coast Beaches. *Wildl. Soc. Bull.* 22: 409-414.
- Nol, Erica and Blanken, Michele, S. 1999. Semipalmated Plover. In *The Birds of North America*, No. 444, (A. Poole, P. Stettenheim, and F. Gill, Eds.) Philadelphia : the Academy of Natural Sciences; Washington, DC : The American Ornithologists' Union, pages 1-23.
- Patterson, M. E., J. D. Fraser, and J. W. Roggenbuck. 1991. Factors Affecting Piping Plover Productivity on Assateague Island. *J. Wildl. Manage.* 55(3): 525-531.
- Plissner, J. H. and S. M. Haig. 1996. International Piping Plover Census. Unpublished. US Geological Survey, Biological Resources Division, Cornwallis, Oregon, 28 pp + Appendices.
- Reed, A., Ward, D.H., Derksen, D.V. & Sedinger. J.S. 1998. Brant. In *The Birds of North America*, No. 337, (A. Poole, P. Stettenheim, and F. Gill, Eds.) Philadelphia : the Academy of Natural Sciences; Washington, DC : The American Ornithologists' Union, 32pp.
- Roland, A.E. and Smith E.C. 1996. *The Flora of Nova Scotia*. The Nova Scotia Museum, The Proceedings of the Nova Scotia Institute of Science, Vol.26, 746pp.
- Shaffer, F, et P. Laporte. 1992. Rapport synthèse des recherches relatives au Pluvier siffleur (*Charadrius melodus*) effectuées aux Îles-de-la-Madeleine de 1987 à 1991. Rapport interne, Association québécoise des groupes d'ornithologues et Service canadien de la faune. 78 pp.
- Strauss, E. 1990. Reproductive Success, Life History Patterns, and Behavioural Variation in a Population of Piping Plovers Subjected to Human Disturbance. Ph. D Thesis, Tufts University. 143 pp.
- Terres, J.K. 1991. *The Audubon Encyclopaedia of North American Birds*. Alfred P. Knopf, Inc. 1109 pp.
- Tufts, Robie, W. 1986. Third Edition. *Birds of Nova Scotia*. Nimbus Publishing Limited, the Nova Scotia Museum, Halifax, Nova Scotia. 478 pp.

## 10.0 Appendix

### Wild Plants of Cape Sable Island

The following list names some of the interesting plants which have been observed on Cape Sable Island. This list was compiled by Lillian Perry a local amateur botanist from Barrington and verified by Ruth Newell the curator of the herbarium at Acadia University.

#### Bogs

|                     |   |
|---------------------|---|
| Holly               | <i>Ilex verticillata</i>                |
| Inkberry            | <i>Ilex glabra</i>                      |
| Pale Laurel         | <i>Kalmia polifolia</i>                 |
| Rhodora             | <i>Rhododendron canadense</i>           |
| Honeysuckle         | <i>Lonicera sp.</i>                     |
| Pitcher Plant       | <i>Sarracenia purpurea</i>              |
| Calopogon           | <i>Calopogon pulchellus</i>             |
| Arethusa            | <i>Arethusa bulbosa</i>                 |
| Rose Pogonia        | <i>Pogonia ophioglossoides</i>          |
| Cattail             | <i>Typha latifolia</i>                  |
| Orach               | <i>Atriplex patula</i>                  |
| Bake Apple          | <i>Rubus chamaemorus</i>                |
| Blue Flag           | <i>Iris versicolor</i>                  |
| Curly Grass Fern    | <i>Schizaea pusilla</i>                 |
| Bog Aster           | <i>Aster nemoralis</i>                  |
| Sheep Laurel        | <i>Kalmia angustifolia</i>              |
| Sedge               | <i>Carex canescens</i>                  |
| Round-leaved Sundew | <i>Drosera rotundifolia</i>             |
| Sedge               | <i>Carex paupercula</i>                 |
| Blue-joint          | <i>Calamagrostis canadensis</i>         |
| Horned Bladderwort  | <i>Utricularia cornuta</i>              |
| Small Cranberry     | <i>Vaccinium oxycoccus</i>              |
| Bog Huckleberry     | <i>Gaylussacia dumosa</i>               |
| Foxberry            | <i>Vaccinium vitis-idaea</i>            |
| Teaberry            | <i>Gaultheria procumbens</i>            |
| Ground Juniper      | <i>Juniperus communis var. depressa</i> |

*Maritime (Includes Rocky Shoreline, Salt Marshes, Barrier Beach Ponds, Sand Beaches)*

|           |                           |
|-----------|---------------------------|
| Bindweed  | <i>Convolvulus sepium</i> |
| Beach Pea | <i>Lathyrus japonicus</i> |

|                   |  |
|-------------------|--|
| Everlasting       | <i>Anaphalis margaritacea</i>                                |
| Chamomile         | <i>Matricaria maritima</i>                                   |
| Silverweed        | <i>Potentilla anserina</i>                                   |
| Seaside Goldenrod | <i>Solidago sempervirens</i>                                 |
| Sea Lavender      | <i>Limonium carolinianum</i>                                 |
| Sea Rocket        | <i>Cakile edentula</i>                                       |
| Sea Mertensia     | <i>Mertensia maritima</i>                                    |
| Sea Blite         | <i>Suaeda maritima</i>                                       |
| Pondweed          | <i>Potamogeton perfoliatus</i>                               |
| Beach Wormwood    | <i>Artemisia stelleriana</i>                                 |
| Seabeach Sandwort | <i>Arenaria peploides</i><br>(= <i>Honckenya peploides</i> ) |

#### Wooded Areas

|                     |                           |
|---------------------|---------------------------|
| Pink Lady's-slipper | <i>Cypripedium acaule</i> |
| Clintonia           | <i>Clintonia borealis</i> |
| Trailing Arbutus    | <i>Epigaea repens</i>     |

#### Atlantic Coastal Plain Plants

|                      |                                    |
|----------------------|------------------------------------|
| White Fringed Orchid | <i>Platanthera blephariglottis</i> |
| Blue-eyed Grass      | <i>Sisyrinchium sp.</i>            |
| Bayberry             | <i>Myrica pensylvanica</i>         |
| Lance-leaved Violet  | <i>Viola lanceolata</i>            |
| Catbrier             | <i>Smilax rotundifolia</i>         |
| Chokeberry           | <i>Aronia arbutifolia</i>          |

#### Roadsides

|             |                    |
|-------------|--------------------|
| Rugose Rose | <i>Rosa rugosa</i> |
|-------------|--------------------|

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## Shorebirds of Cape Sable Island

This is a list of shore birds counted by Sid and Betty June Smith for the Canadian Wildlife service, July 26, 2000 on Hawk Flats and Cape Sable. Sid and Betty June live in Barrington but spent years living with their family as the light house keepers on Cape Sable.

|                        |      |
|------------------------|------|
| Black-bellied Plover   | 11   |
| Semipalmated Plover    | 281  |
| Piping Plover          | 2    |
| Willet                 | 50   |
| Greater Yellowlegs     | 12   |
| Spotted Sandpiper      | 1    |
| Whimbrel               | 30   |
| Red Knot               | 1    |
| Semipalmated Sandpiper | 3165 |
| Least Sandpiper        | 38   |
| Short-billed Dowitcher | 2590 |
| Rudy Turnstone         | 2    |
| Sanderling             | 2    |
| Killdeer               | 5    |
| Oystercatcher          | 3    |

(A distant flock of 1850 unidentified peeps were also seen)