

THE NINTH ANNUAL REPORT OF THE BOWDOIN SCIENTIFIC STATION

Bulletin No. 11 Bowdoin College, Brunswick, Maine, January 1, 1949

CONTENTS

Report of the Kent Island Committee	1
Report to the Members of the Governing Boards of Bowdoin College - President, K. C. M. Sills,	2
Report of the Field Director-1947-Raymond A. Paynter, Jr.,	3
Report of the Field Director-1948-Raymond A. Paynter, Jr.,	5
Bird Banding,	7
Recent Recoveries of Banded Birds,	10
The "Iris Spider" of Kent Island, - Elizabeth B. Bryant,	15
Birds Observed and Species Populations of Kent Island, - H. Elliott Winn,	16
Nesting Mortality Rate of the Tree Swallow, - H. Elliott Winn,	19
Duck Hawk,- H. Elliott Winn,	20
Stomach Contents of a Marsh Hawk, - H. Elliott Winn,	20
Muskrats,	20
Contributions of the Station	21

DIRECTOR

Alfred O. Gross

FIELD DIRECTORS

William A. O. Gross	1935-1938
Charles S. Ruckstuhl	1939
James W. Blunt, Jr.	1940-1941
Station closed during war	1942-1945
Raymond S. Paynter, Jr.	1946-1948

WARDEN

Ernest A. Joy 1935-1948

THE BOWDOIN SCIENTIFIC STATION

Kent Island, Bay of Fundy

New Brunswick, Canada

THE NINTH ANNUAL REPORT OF THE BOWDOIN SCIENTIFIC STATION

Bowdoin College,
Brunswick, Maine,
January 1, 1949

To the President and
Trustees of Bowdoin College

Sirs:

Following is the ninth annual report of the Bowdoin Scientific Station located at Kent Island, Bay of Fundy, New Brunswick, Canada.

The Governing Boards of the College appropriated Eight hundred fifty dollars (\$850.00) for the year 1947-1948. Of this amount \$360.00 was paid to Mr. Ernest Joy for his services as warden. The remainder was used for payment of taxes, minor repairs to buildings, construction and erection of 50 bird houses and cost of reprints of contributions and reports of the station. Thus far there have been 21 contributions of the station as listed at the end of this report. Others are in press or in preparation.

Mr. Raymond A. Paynter, Jr., Bowdoin '47 again served as Field Director during the summers of 1947 and 1948. His reports are included in this bulletin. Since last October Mr. Paynter has been in the tropical jungles of Quintana Roo, Mexico where he is leader of the Yale Ornithological Expedition. We all wish him the greatest of success in this interesting and important project.

Mr. Ernest Joy, Warden of the station, continues to serve us well. He is greatly interested in the island and especially in its bird life. Year after year he has taken the daily meteorological readings for the station which have proven to be of great value. Mr. Joy has been helpful in many ways to the scientific workers and visitors to the island. He has been instrumental in building up and maintaining the much needed cooperation of the fisherman and native population of the region.

In September, 1948, the station suffered a great loss through the death of Mrs. Carrie Chase, housekeeper for Mr. Joy. Mrs. Chase has been connected with the station since shortly after its establishment and was an integral part of all Kent Island activities. No visitor or former Kent Islander will ever remember Kent Island without fond association of Mrs. Chase. Her passing is a great loss to us all.

The large two ton electric generator received from the war surplus material acquired through the cooperation of the State Department of Education in 1947, has been exchanged for a small Dohler 1500 K.V.A. 60 cycle, 1 phase gasoline driven DC 4 cylinder engine. It was impractical to transport the heavy generator because of the lack of facilities on the island. The smaller generator will be fully adequate and will fulfill a great need in charging batteries and in operating the short wave transmitter the only means of communication with the mainland. It will also be useful in supplying electricity for the lighting system of the mess hall and dormitory during the summer sessions.

President, K. C. M. Sills visited the station for the first time on August 22-23, 1948. His visit was a source of great pleasure and encouragement for those directly concerned with the work of the station. President Sills' letter to the members of the Governing Boards of the College follows.

Friends of the station will be interested in the series of photographs taken during his visit to Kent Island.

Upper left: President Sills, Mr. Wilder, Mrs. Wagoner, Dr. Richard Wagoner, Ernest Joy, warden of the island, and Dr. Kamerling. Dormitory and mess hall in the background.

Upper right: President Sills on the eastern shore of Kent Island. Gull colony in the distant background.

Middle left: President Sills and Mr. Wilder on the steps of the guest house.

Middle right: President Sills exhibiting a downy young Leach's Petrel near its nesting burrow among the spruces. Dr. Wagoner in the background.

Lower left: President Sills acting as skipper on Dr. Wagoner's yacht, Millicette, which took the party to Kent Island.

Lower middle: rowing ashore with Dr. Kamerling to the western shore of Kent Island.

Lower right: President Sills discussing the possibilities of the Scientific Station.

Included with this report is a separate copy of a popular article, "Kent Island, Avian Paradise" by W. Bryant Tyrell illustrated with 19 photographs of scenes, activities and some of the island bird life. This article appeared in Nature Magazine, Vol. 41, No. 5, May, 1948. We are indebted to Nature Magazine for the separates.

President Sills' Report

Office of the President

August 27, 1948

To the Members of the Governing Boards of Bowdoin College:

Last Sunday and Monday I paid a visit to Kent Island which as you all know is owned by the College and is one of our most interesting off-campus enterprises. Professor Gross, Professor Kamerling, and Mr. Philip Wilder accompanied me, and we made a rather thorough investigation of the buildings and quarters there and therefore I became somewhat more familiar with some of the problems. Mr. Ernest Joy, the warden and caretaker since the station was formed in 1935, is certainly a very fine servant of the College. My object in writing this letter, however, is to make sure that you all appreciate that in Kent Island we have a unique possession, and considering the very small amount of money necessary



PRESIDENT SILLS at KENT ISLAND

for its maintenance so far I feel that the College has been perhaps too hesitant in supporting the enterprise. Professor Gross has plans for its modest development, and it is hoped that next summer several students will go down there and resume their work, both with experiments with birds and with weather observation. The place is very primitive, somewhat isolated, but I understand unusually well adapted to the study of gulls, petrels, and other sea birds, and also might be of value for marine biology.

One of our young graduates, Mr. Raymond Paynter of the Class of '47, who has been on the island for three months working on an ornithological problem, tells me he has had letters virtually from all over the world from people who have been interested in the studies that come from Kent Island and in the birds that have been banded there.

I therefore hope that the College will recognize the importance of this situation and that the members of the Governing Boards will be able to have some background when the budget is made up and when there may be a modest increase in the appropriation requested by Professor Gross.

With kind regards,

Faithfully yours,

(Signed) Kenneth C. M. Sills

Report of the Field Director - 1947

Raymond A. Paynter, Jr.

In this, the second post-war season of operation at Kent Island, our group was again very small owing to the summer trimester at Bowdoin which prevented many advanced biology students from engaging in the customary field work. The size of the staff was offset, however, by the quantity and quality of the work. Over 3,500 birds were banded in co-operation with the U. S. Fish and Wildlife Service and two research problems were actively pursued. The results of these studies are to be published within a few months.

The staff consisted of Raymond A. Paynter, Jr., Field Director, H. Elliot Winn, John Carpentier and Peter Leisure. Mr. Winn made substantial advances towards completing his life history study of the Black Guillemot and the Field Director continued a population study of the Herring Gull begun in 1946. Messrs. Carpentier and Leisure assisted with the population investigation of the Herring Gull and banded many of the birds. Their assistance was invaluable.

Messrs. W. Bryant Tyrrell and William K. Kirsher of Washington, D. C. spent about ten days at the Station in June photographing the

birds and their environs and secured many hundred excellent photographs. Mr. Tyrrell published a popular article on the activities of the Station in the "Sunday Star Pictorial" magazine for January 11, 1948. In May of this year a longer article by Mr. Tyrrell appeared in "Nature Magazine". This article resulted in a number of letters from throughout the country from people expressing an interest in the activities of Station. Our scientific work is seldom popularized, although it is much to be desired, and Mr. Tyrrell's contribution is greatly appreciated.

Prof. Keller Shelar, professor of biology at the Slippery Rock Teachers College, spent a period of one month at the Station making a general study of the botany of the island. Prof. Shelar's knowledge of our flora helped broaden and balance the experience of our staff. Although one usually thinks of Kent Island only in terms of its bird life, the botanical aspect is particularly rich and every effort should be made to include at least one botanist on the staff.

During the entire season frequent groups of tourists from Grand Manan visited Kent Island to see the activities of the Station. It is a pleasure to have visitors who show such keen interest in the island and its fauna. By permitting these visits, the Bowdoin Scientific Station is making a valuable contribution towards the education of the public in matters of conservation.

A note of appreciation is due to the following companies who contributed a substantial part of our equipment and foods for the 1947 season.

Johnson-Appleby Company, Francis C. Stokes Company, Perfection Canning Company, Inc., Kraft Foods Company, Webster-Thomas Company, The Hills Brothers Company, Smithfield Ham & Products Company, Inc., California Fruit Growers Exchange, Planters Nut and Chocolate Company, Chicago Western Corporation, Crosse & Blackwell Company, General Foods Corporation, Lamont, Corliss & Company, Claridge Food Company, Inc., H. J. Heinz Company of Canada Ltd., American Steel Wool Mfg. Company, Inc., Chelsea Milling Company, American Home Foods, Inc., Cranberry Cannery, Inc., Phillips Packing Company, Inc., The Best Foods, Inc., Schlueter Manufacturing Company, Rowse Company, Hershey Chocolate Corp., Morton Packing Company, Poulsen & Nardon, Inc., First National Stores Inc., Ekco Products Company, Club Aluminum Products Company, Friend Brothers Inc., Veince Maid Company, Inc., Oxo Lts., Kato Engineering Company, Flako Products Corp., Kalamazoo Stove and Furnace Company, Land O' Lakes Company, McCormick and Company, Inc., F. E. Myers & Bro. Company, Dazey Corporation, Swing-a-way Steel Products, Rochester Dairy Cooperative, National Biscuit Company.

Kent Island, Avian Paradise

By W. BRYANT TYRRELL

Photographs by the Author

South Point of Kent Island at high tide and on a rough day. Below, the headstone that marks the grave of John Kent, first settler and owner of the island, and of his wife, Susanna.



IN the mouth of the tide-famed Bay of Fundy lies Kent Island, one of the rocky members of the Grand Manan archipelago. If you prefer the hurly-burly of the city, this is no place for you. But if you would delight in the cries of myriad gulls, in the incessant beat of waves upon a rocky shore; if you would find music in the hoarse call of the foghorn, or companionship with legions of birds, then you would find this isle a paradise.

On this sea-girt spot live some fifty thousand birds. At least thirty species nest on this mile-and-one-half long by quarter-mile-wide island. One hundred and eight species, according to the record, visit there. This avian population provides the destiny the island now fulfills—a spot for much serious scientific study of birds.

Myth mingles with mystery to enshroud the history of Kent Island: In the early 1800s John Kent and his brother came to the island from England, prospering by piloting ships up the Bay of Fundy, and intensively farming the half-mile of open meadow. In 1819 the Province of New Brunswick gave the Kents a grant to the island, and they sent to England for their families. An imposing homestead was reared, later to burn, save for one wing, which now serves as a home for the resident warden. In the days of the Kents the southern end of the island was connected with a mass of rocks on the east, known as the Eastern Ledge. Thus a safe, deep-water harbor was formed, and there the owners moored their boats. Today the land connection is no more, and moorings are offshore.

A headstone marks the grave of John Kent, who died in 1828 at the age of 67. There is no clue to the fate of his brother, but John's wife, Susanna, lived to be 92, dying twenty-five years after her husband, and, in that quarter century giving rise to such stories of witchcraft that she and the island were both avoided.

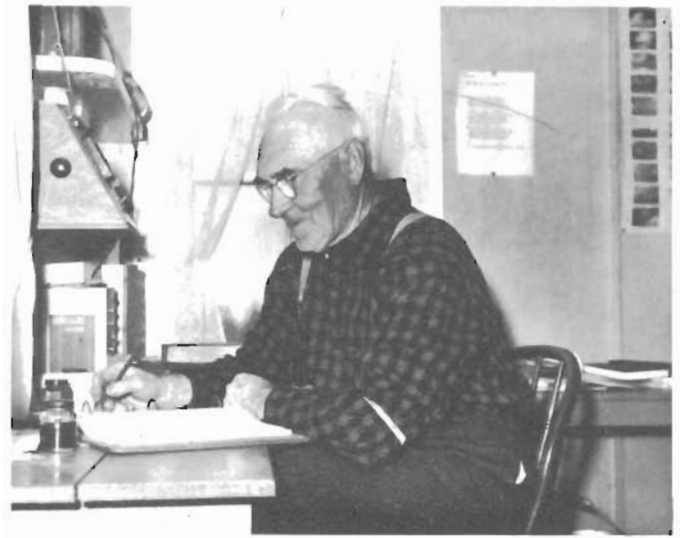
Through the years the island was farmed, and supported considerable numbers of birds. Among these were American eider ducks, whose eggs were considered a delicacy, and whose down was so prized that both were gathered in such quantities as to threaten the extirpation of the birds everywhere. Kent Island's eiders were no exception, and, in 1930, Allen Moses, a Grand Manan bird enthusiast, influenced J. Sterling Rockefeller to purchase the island as a sanctuary. That same year Dr. Alfred O. Gross, renowned Bowdoin College ornithologist, made a study of the eider population, finding only thirty nests, where formerly there had been hundreds. Ernest A. Joy was installed as warden, and under his vigilance the nest sites of the eiders have increased to at least one thousand.

Students from Bowdoin made other studies of birds on the island. This adoption of Kent Island as a sort of ornithological laboratory, combined with the lack of success of Mr. Rockefeller's silver fox raising venture, resulted in the gift of the island to the college. Now it is the Bowdoin Scientific Station, an outdoor laboratory that has produced important information on many bird species, as well as in the fields of botany and geology.





The author, standing, left, with the staff on the island during the 1947 summer: John Carpentier; William K. Kirsher; Elliott Winn, who was studying black guillemots; Raymond A. Paynter, the field director of the station. Seated, Warden Joy and Peter Leisure.



Ruddy, weather-beaten Ernie Joy puts down his records for the day. Before him are his weather instruments. Ernie is a store of fascinating stories of the country, friend to the students, philosopher, and protector of the birds the year around.



In the laboratory Ray Paynter works on a herring gull skin, while Elliott Winn measures guillemot eggs. Below, Winn and Kirsher relax after dinner with some Nature literature, while Paynter busies himself with writing up the day's notes.



Carry, Ernie's housekeeper, takes from the oven some of her delicious bread. Below, getting supper. Carpentier and Leisure are on the spud-peeling detail; Winn inspects critically a can of tomatoes, while Kirsher and Paynter get ready to do the real work at the kitchen stove. Life and food are simple on Kent Island.



The northern end of Kent Island is covered with a dense growth of white spruce, under which, in the soft, peaty soil, nest about five thousand Leach's petrels. Atop one of the tallest spruces a raven makes his home, and golden-crowned kinglets also nest in these trees. Along the rocky shore, at the woodland's edge, are many herring gulls.

The central part of the island, where the buildings are, is more or less open. Diligent search in the surrounding grass may turn up the dome-shaped nest of the Savannah sparrow, or the homes of song sparrows. Tree swallows have accepted the hospitality of many of the bird houses erected for visitors, and barn, bank and cliff swallows are also to be found. Along the edge of the woods flit alder flycatchers, redstarts, myrtle warblers and blackpoll warblers.

The southern end of the island is partly marshy. In July it blooms with a thick carpet of iris, dotted with white by nesting herring gulls. Eider nests are found there, too, and, on higher elevations, nests of the great black-backed gulls. On the rocky shore, where storm waves break in full fury, nest black guillemots.

Most populous are the herring gulls, some 30,000, constituting the largest colony on the Atlantic seaboard. Leach's petrels are the next most numerous of the residents, and the eiders third. The great black-backed gulls are relative newcomers, with only about thirty nesting pairs.

Besides Warden Ernie's home in the remnant of the old Kent mansion, buildings house the living quarters and laboratory for the summer students, radio equipment, tools and supplies. An old barn, built of hewn timbers with whip-sawed siding, provides dormitory, dining room, kitchen and study. In the latter a fireplace sends forth welcome warmth in the evenings when winds sweep the island, and the waves dash against its shores.

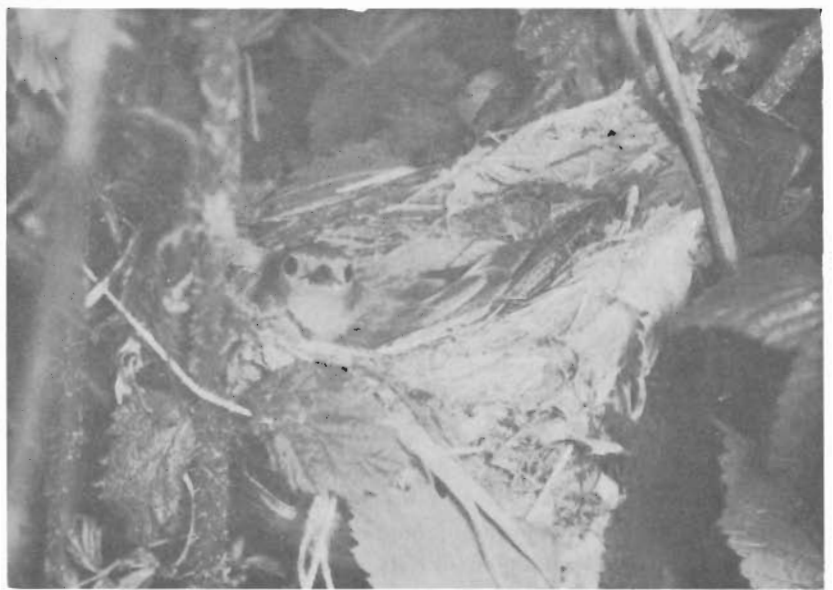


Elliott Winn examines the band on the leg of a black guillemot, and, below, weighs two eggs of the bird on his delicate scales.



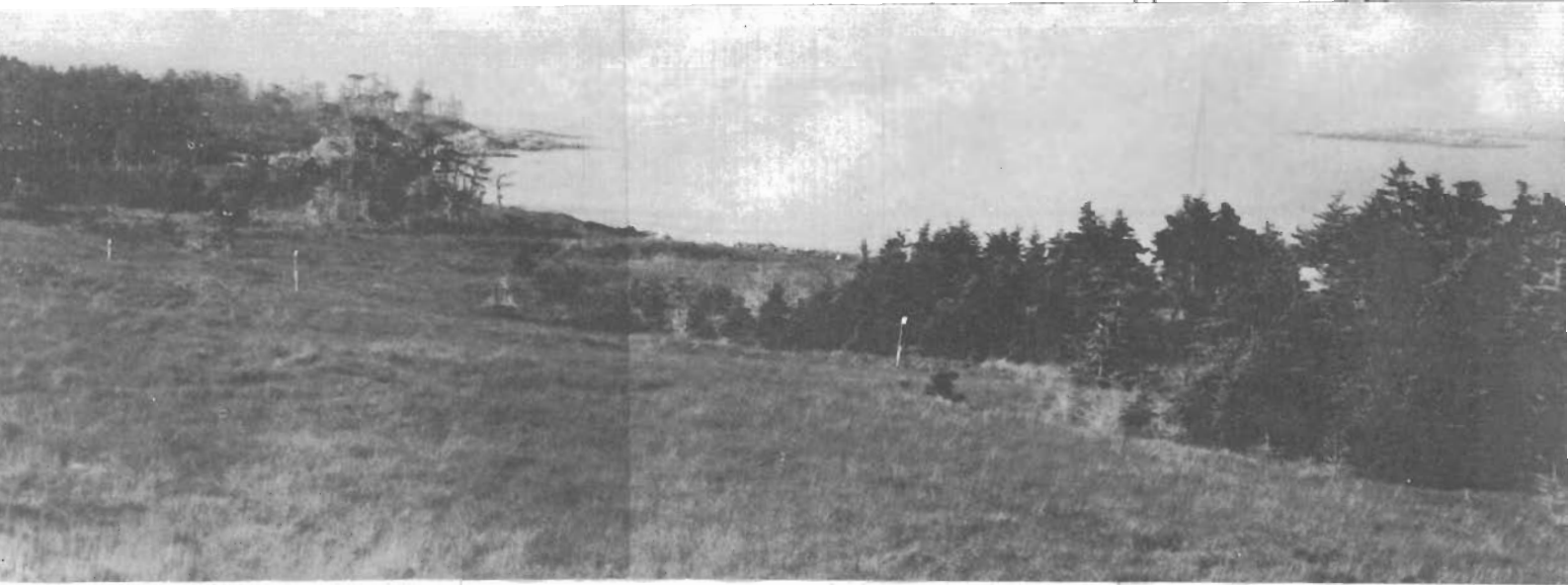
Ray Paynter, right, puts a band on a young herring gull, the species with which he was working. Between 1934 and 1945, 34,557 young and 1635 adults were banded on the island. Returns from 1373 of these shed light on the travels of the birds, and whether they return to Kent to breed and rear their young. Below, some of the gulls and their nests, of which there are some 15,000 on the island. Offshore the fog is rising, beginning to reveal the island of Grand Manan, about ten miles away.





Across the top of these pages is a panorama of Kent Island. Above, female yellow warbler on her nest. This is one of the three warbler species found nesting on the island. At the left, a spotted sandpiper, the common sandpiper nesting in the United States. These birds nest on the edges of the stony beaches. Below is the nest of a barn swallow. Its mud nest is lined with the feathers of gulls. Cliff, tree, and bank swallows also raise their families there.





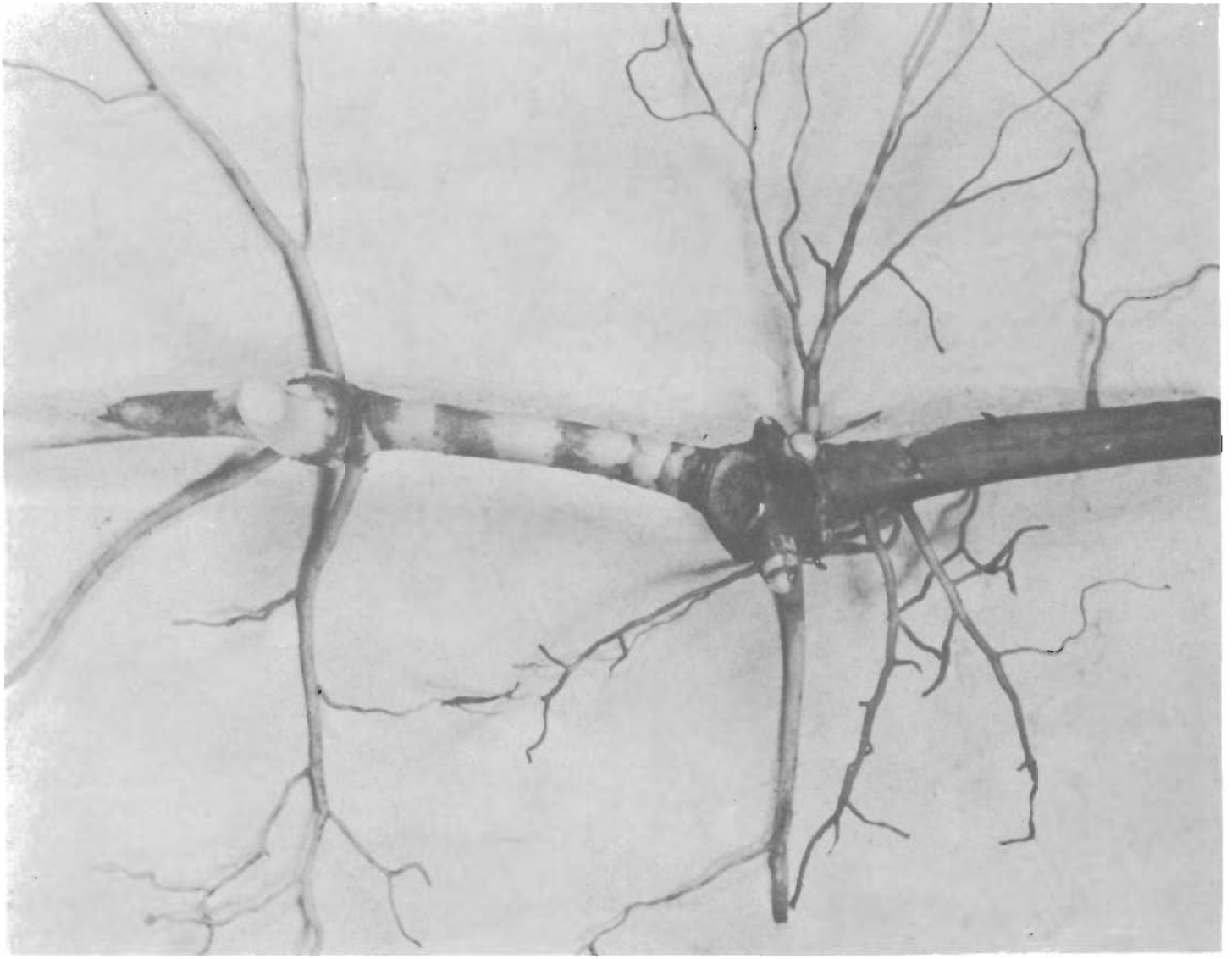
Song sparrows, above, at their nest. One parent is feeding the young while the other stands by with food in its bill. At the right, a herring gull alights. These birds are the most numerous of the avian residents on the island. Below, black-backed gulls and young. These, one of our largest gulls, nest about a month earlier than herring gulls. There are thirty nests on Kent Island, and these gulls are relative newcomers, having been recorded only since 1933.





A stand of the handsome mandrake, or May apple, known to botanists as *Podophyllum peltatum*. It grows in patches, with the plants springing up at intervals from the underground root system. Under each plant is a rosette of roots, two of which may be seen pictured below. The stem from last year's plant is seen at the right, and from this darker section the roots branch out. Buds for next year's plants may also be seen. This year's stem and buds for new plants next year are at the left. The roots form an intricate network so that nearly all of the plants in a patch come from the same root.

Photographed by
Arthur C. Parsons



REPORT OF THE FIELD DIRECTOR - 1948

Raymond A. Paynter, Jr.

The number of field workers in the 1948 season was again disappointingly small with only the Field Director spending the entire season on the island. The lack of students is still attributable, in part, to the summer sessions at Bowdoin.

In June Prof. Alton Gustafson and Dr. G. Edgar Folk, Jr. of the Bowdoin Department of Biology spent a week between the spring and summer trimesters, inspecting the Station and gaining an insight into its potentialities. Messrs. Hubbard Trifts, James Nelson, Joseph S. White, Jr. and Donald D. Payne, Bowdoin undergraduates, accompanied the faculty members and, although on vacation between trimesters, were of great assistance by making a number of major repairs about the Station.

In late June, Mr. George Boyer, Dominion Wildlife Officer from the Maritime Provinces, and Mrs. Boyer spent a day at Kent Island inspecting the Herring Gull colony in connection with the Canadian Government Herring Gull Control Project which is discussed elsewhere in this report.

Mr. Willard Hartman of Yale University visited us for two weeks in July making an extensive collection of marine and terrestrial invertebrates, paying particular attention to the sponges. Mr. Hartman intends to use some of this material in a monograph of the sponges of the North Eastern Atlantic coast.

In mid-season Messrs. George Cary, 2nd, Charles A. Cary and James C. Rea, Jr. stopped at the island for a short while during a yachting trip down the coast. Dr. and Mrs. John Lord visited the island for several days in August.

On August 22nd President Sills, Dr. A. O. Gross, Dr. Samuel Kamerling, Mr. Phillip Wilder and Dr. and Mrs. Richard Wagner arrived on Dr. Wagner's yacht the "Millecette". This was the first visit of President Sills to Kent Island and it was planned to give him a first-hand knowledge of Bowdoin's most distant property.

GENERAL STATUS:

The Bowdoin Scientific Station was established about fifteen years ago. During the early part of this time a considerable number of additions were made and the Station appeared to be well on its way towards becoming one of the outstanding biological field stations in North America. However, the war interrupted this healthy growth and now, although the buildings are in general in excellent repair, the remainder of the equipment is becoming obsolete and beyond repair at an alarming rate. There have been so few students that large expenditures do not seem warranted.

With the many pressing needs of all colleges at this period, it is illogical for Bowdoin to expend large sums for the upkeep and expansion of a unit which at present serves so few students. On the other hand, lack of equipment discourages prospective workers. The Bowdoin Scientific Station, therefore, must become a partially self-supporting unit since, although there are convenient facilities for about twenty students at one time, there is no possibility of the Station growing large enough to warrant very heavy expenditures by the College. The island is simply too small to handle more than twenty or so students without damaging natural ecological conditions.

The pre-war enrollments at Kent Island show that there are at least twenty students a year who would avail themselves of the opportunities offered by the Station. If students were accepted from other colleges the number would be much too large for the size of the island. Within the last two years inquiries from teachers and students from other institutions have been very frequent showing the need for a research station offering opportunities not available at large laboratories such as Wood's Hole and Cold Springs Harbor.

The problem now is to discover why the students have not been going to Kent Island these past three years and what should be done to encourage them.

The whole problem stems from the lack of organized field courses offering academic credit. Many students feel that it is necessary for them to complete their formal education as rapidly as possible. A summer at Kent Island means an expenditure for board and transportation and offers no academic credit in return. Many students feel it far better to work in an industry or attend the Bowdoin summer sessions. Either way, they feel, it is far more profitable and, from the viewpoint of an undergraduate who is unprepared to carry on independent research, we must be inclined to agree.

The solution of this problem is relatively simple; summer field courses should be offered if Kent Island is to contribute all it is potentially able to offer the Bowdoin students.

In the early years of the Station, some academic credit was offered but no tuition was charged. Consequently, it was difficult to secure a faculty which would be willing to teach without payment and also pay its own board and travel expenses even though there were many opportunities for personal research.

If a small tuition charge was made for each course, there should be ample funds to pay the board and travel expenses of several teachers. In that manner they would be able to conduct their own research at Kent Island without cost. I personally know of a number of qualified young instructors who would gladly accept such a position.

Kent Island is rich in several Biological fields and courses should be offered which will take advantage of these. Ornithology, of course, cannot be taught under better conditions. Kent Island is very famous in ornithological circles. Marine invertebrate zoology has great potentialities at Kent Island due to the extreme

Bay of Fundy tides and large expanses of tide flats. Even the inexperienced observer cannot fail to be impressed by the abundance of marine life. Many graduate schools require a summer's field work in marine zoology and Bowdoin students intending to go on to advanced biological work would appreciate such a course at Kent Island. Botany, entomology, etc. also may be studied profitably at the Station. All courses could not be offered each year but would depend on the teachers available.

CONTROL OF A NATURAL ECOLOGICAL AREA:

The Canadian government has recently requested permission to reduce the population of Herring Gulls on Kent Island. There have been, apparently, some complaints of depredation by the gulls in the Grand Manan region although the Field Director has attempted to discover the source of these complaints without success. The Canadian government believes it advisable to initiate a control program in the Grand Manan area. Because Kent Island is the largest gull colony in North America it appears to be the nucleus of the population difficulties which some think exist.

It is the firm belief of the Field Director that permission to control the Kent Island colony should be refused. The Station was established as a sanctuary for such populations where natural populations could be studied. At present a population study of the Herring Gull is being conducted and any control measures would terminate this study prematurely as well as upset the natural balance of the colony for many years to come. To allow control measures to be practiced in this sanctuary is unthinkable.

BIRD BANDING

During the summers of 1947 and 1948 Mr. Raymond A. Paynter, Jr. banded a total of 5,048 birds as shown in the following table.

Species	1947			1948			Grand Total
	Yg.	Ad.	Total	Yg.	Ad.	Total	
Leach's Petrel	22	80	102	--	--	--	102
American Eider	--	1	1	--	4	4	5
G. Black-backed Gull	47	--	47	40	--	40	87
Herring Gull	2852	98	2950	1686	14	1700	4650
Black Guillemot	--	--	--	17	--	17	17
Tree Swallow	--	--	--	98	33	131	131
Barn Swallow	--	--	--	4	2	6	6
Cliff Swallow	12	3	15	11	3	14	29
Crow	--	--	--	1	--	1	1
Savannah Sparrow	--	--	--	8	1	9	9
Song Sparrow	--	--	--	11	--	11	11
Totals	2933	182	3115	1876	57	1933	5048

Tree Swallow

Fifty new bird houses, primarily for Tree Swallows were constructed at the Bowdoin carpenter shop and erected in strategic places on the island during the past year. These houses not only encourage the nesting of a desirable species but also facilitate the banding of both adults and young. The houses were designed by Professor Lawrence Chapman of M. I. T. who has had great success in his investigations of the Tree Swallow. Each box is provided with a moveable metal shutter for trapping the adult bird while on the nest. There is a removable top for the removal of old nesting materials at the end of the breeding season.

Ninety-eight young and thirty-three adult Tree Swallows were banded during the past summer. This work if continued should yield some very interesting results.

In addition to the Tree Swallows, the Bank, Barn and Cliff Swallows nest in numbers at the station and these likewise offer material for study.

Black Guillemot

Mr. A. Elliott Winn, Bowdoin '48 made an extensive life history study of the Black Guillemot during the summers of 1946 and 1947. The results of his work are being prepared for publication while continuing his work in ornithology at the University of Michigan.

Mr. R. A. Paynter, Jr. banded 17 young Black Guillemots in 1948 and obtained a recovery of an adult Number 36-509792 banded by Mr. Winn on July 10, 1946.

Great Black-backed Gull

Mr. Albert Barnes made an excellent beginning in a life history study of the Black-backed Gull in 1946. This past season he gathered much material on this species during his trip to the Arctic with Commander MacMillan. He expects to return to Kent Island for another season to complete his work on this bird which has become well established on the island as a nesting species.

Mr. R. A. Paynter, Jr. banded 87 Black-backed Gulls during the past two seasons. These in addition to 33 birds banded by Mr. Barnes in 1946 are yielding interesting returns.

Eider Duck

The large colony of 1,000 pairs of breeding Eider Ducks offers an interesting problem for a student who would devote his entire time to this species. Many of the birds should be banded to determine their distribution in winter.

Herring Gull

The study and banding of Herring Gulls has been one of the major projects at the station since 1934. During the past 14 years the various cooperators and their assistants have banded 41,952 Herring Gulls of which 39,708 were young and 2,244 were adults. From these we have received 1,554 recoveries; 1437 have been reported in previous issues of the bulletin and 117 are listed in this issue.

An analysis of 773 recoveries received up to the end of the year 1939 was presented in a paper "The Migration of Kent Island Herring Gulls", contribution number 7 of the Bowdoin Scientific Station published in Bird Banding, 11(4):129-155.

Hustace H. Poor in a paper "Color-banded Adult Herring Gulls" Contribution number 11 included all the sight records of adult Herring Gulls banded with colored bands at Kent Island. Bird Banding, 15 (3): 112-114.

Mr. Ray Paynter, Jr. published a paper on "The Fate of Banded Kent Island Gulls" based on 1,252 recoveries of gulls received up to December 31, 1945 as contribution number 17 of the Station and Osborn Zoological Laboratory, Yale University. Bird Banding, 18 (4): 156-170.

Mr. Paynter has also completed a paper on "Clutch-size and the egg and chick mortality of Kent Island Herring Gulls" which will be published in the April, 1949 issue of Ecology, as contribution number 21 of the Bowdoin Scientific Station and Osborn Zoological Laboratory, Yale University. Some of the results presented in Paynter's paper are as follows: The mean clutch size of Herring Gulls at Kent Island is $2.46 \pm .03$; Clutch size of early nests was $2.61 \pm .14$ of late nests $2.54 \pm .15$. Seventy-one per cent of the eggs laid hatched. There is a significantly lower egg mortality in three-egg nests than in two-egg nests. The greatest mortality rate after hatching occurs within the first seven days, during which nearly 20 per cent of the birds die. About 51 per cent of the birds survive to the 43rd day. There is no significant difference in survival of chicks from three, two or one chick broods. The size of the brood is not related to the age at flight. The egg survival in the Kent Island colony of L. a. smithsonianus is lower than that recorded for the various colonies of L. a. argentatus. The brood survival at Kent Island is within the range given for the European birds. Tables of published life tables fail to indicate the correct survival rate and life expectancy for the Herring Gull if the population is to remain constant. A new life table based on one year class (1936) of gulls from Kent Island has been prepared with the addition of the early mortality rates obtained in this study. A semi-logarithmic survivorship curve shows a positively skew rectangular pattern. Mr. Paynter has included a bibliography of 46 papers relating to the subject.

Herring Gulls Banded

1934 - 1948

		<u>Number of Gulls Banded</u>		
<u>Bander in charge</u>	<u>Year</u>	<u>Young</u>	<u>Adults</u>	<u>Total</u>
F. B. Whitman, Jr.	1934-35	2,248	--	2,248
J. A. Crystal	1935	6,754	50	6,804
J. A. Crystal	1936	7,600	400	8,000
N. R. Pillsbury, Jr.	1937	4,651	200	4,851
C. S. Brand	1938	3,059	720	3,779
I. H. Spear	1939	3,000	110	3,110
E. A. Joy	1940	800	--	800
I. M. Spear	1941	1,300	155	1,455
E. A. Joy	1942	687	--	687
A. O. Gross	1943	2,258	--	2,258
A. O. Gross	1944	2,000	--	2,000
A. O. Gross	1945	400	--	400
R. A. Paynter, Jr.	1946	415	497	910
R. A. Paynter, Jr.	1947	2,852	98	2,950
R. A. Paynter, Jr.	1948	1,686	14	1,700
Fourteen-year Totals		<u>39,709</u>	<u>2,244</u>	<u>41,952</u>

From the 41,952 Herring Gulls banded at Kent Island during the past fourteen years, we have received reports of 1,554 recoveries up to November 1, 1948.

The number of recoveries represents 3.7 per cent of the total number of birds banded. This means out of every 1,000 gulls banded we can reasonably expect to receive, on the average, about 37 recoveries.

RECOVERIES OF HERRING GULLS BANDED AT KENT ISLAND
NOT PREVIOUSLY REPORTED

<u>Number</u>	<u>Banded</u>	<u>Recovered</u>	<u>Place of Recovery</u>	<u>How Recovered</u>
B-624543	7-21-34	4-17-39	Fort Hauenk, N. J.	Found dead
B-624838	7-23-34	2-16-39	North Tarrytown, N. J.	Hung on vine
34-542815	8-13-34	4-17-39	Shark River, N. J.	Found dead
34-543290	8-27-34	11-16-40	Point Pleasant, N. J.	Found dead
35-531281	8-8-35	Winter 37-38	Long Beach, L.I., N.Y.	Found dead
35-5325 0	8-9-35	6-30-47	<u>Kent, Id., N.B., Canada</u>	Jacked & released with B.42-655136
35-532592	8-9-35	9-30-39	Rockport, Mass.	Shot in quarry pit
35-548061	8-1-35	10-23-39	Petite Pabos, Caspe, Quebec	Found
35-550910	8-10-35	Summer 39	St. Anthony, Newfoundland	No report
35-551086	8-1-35	11-3-41	Silver Lake Res., S.I., N.Y.	Killed
35-551404	8-1-35	4-17-39	Ventnor Heights, N.J.	Found dead
35-551473	8-1-35	6-4-48	<u>Kent Island, N.B., Canada</u>	Found dead

Number	Banded	Recovered	Place of Recovery	How Recovered
35-551667	8-1-35	6-13-38	Bedell's Is., L.I., N.Y.	Found dead
35-551897	8-1-35	10-29-41	Brooklyn, New York	Found dead
35-552473	7-29-35	Winter 41	Cape Lookout, N. C.	Found dead
35-555160	8-25-35	3-27-47	New Haven Harbor, Conn.	Found dead
35-557054	No Rec.	6-30-47	<u>Kent Island, N.B., Can.</u>	Jacked & released
Ad.35-557283	8-4-38	2-26-48	Mount Hope Bay, Mass.	Found dead
35-557478	8-9-36	3-26-39	Prince's Bay Beach, S.I., N.Y.	Found dead
35-601015	No Rec.	9-10-47	Campabello Id., N.B.	Too weak to fly
36-641387	7-11-38	5-15-47	Little River, Digby Co., N.S.	Found dead
36-644018	7-30-36	8- -37	Lambertville, Deer Id., N.B.	Found dead
36-644864	7-30-36	7-26-48	Southwest Harbor, Maine	Found dead
36-645731	8-3-36	11-10-47	Airport, S. Plainfield, N.J.	Shot
36-645981	8-13-36	8-8-48	Eastport, Maine	Found dead
36-646076	8-3-36	10-27-41	Peconic Bay, L.I., N.Y.	Found dead
36-646202	8-6-36	4-10-47	<u>Kent Id., N.B., Canada</u>	Found dead
36-648933	8-13-36	11-15-47	Point Lookout, L.I., N.Y.	Found dead
36-649288	8-10-40	12-7-46	Rockway, L.I., N.Y.	Found dead
36-650166	7-9-43	8-19-47	Mill Neck Creek, L.I., N.Y.	Found sick
36-650396	8-20-42	2-29-47	Lynn, Massachusetts	Found dead
36-650747	7-31-43	6-2-47	Brownies Id., Maine	Found dead
36-650787	7-31-43	12-27-46	Aydlett, North Carolina	Found dead
36-650999	7-31-43	6-7-48	Cape St. Marys Digby Co. N.S.	Found dead
37-646897	8-10-47	6-14-48	East Ferry, Nova Scotia	Caught in trawl
37-653258	7-11-37	7-5-48	<u>Kent Id., N.B., Canada</u>	Found dead
37-655261	7-18-37	6-27-38	Eastport, Maine	Caught
37-655638	7-20-37	10-21-37	St. Augustine, Florida	Found dead
37-656667	7-24-37	5-18-39	Argyle Lake, New York	Killed by turtle
37-657675	8-28-37	8-17-47	Central Grove, N.S.	Caught & released
37-657892	7-17-38	7-29-47	Nashawena Id., Mass.	Found dead
37-657938	7-17-38	11-13-38	Swansboro, N. C.	No Report
37-664862	8-20-42	6-30-47	<u>Kent Id., N.B., Canada</u>	Jacked & released
37-664862	8-20-42	4-30-48	Grand Manan, N.B., Canada	Found dead
37-664970	8-20-42	7-25-48	Monhegan Island, Maine	Found dead
Ad.38-660146	7-25-41	6-10-48	<u>Kent Id., N.B., Canada</u>	Jacked & released
38-660401	7-21-41	8-9-48	<u>Kent Id., N.B., Canada</u>	Dead under a rock
38-666208	7-28-42	12-23-42	Banana River, Florida	Caught & released
38-666238	7-28-42	5-19-43	Rockaway, L.I., N.Y.	Found dead
38-666443	7-28-42	5-7-43	Beals Island, Maine	Found
38-666466	7-20-42	7-3-43	Provincetown, Mass.	Found injured
38-666486	7-28-42	1-2-43	Panama City, Florida	Caught & released
38-667856	7-21-41	11-15-47	Nahant Beach, Boston, Mass.	Found dead
38-667933	7-31-41	12-15-41	Escambia Bay, Florida	Found dead
38-668013	7-21-41	1-1-48	Camp Lejeune, N. C.	Found dead
38-669613	7-28-38	6-17-48	<u>Kent Id., N.B., Canada</u>	Band found re-
38-670240	8-2-38	9-2-47	Chamcook, New Brunswick	Released, band moved
38-721269	No Rec.	8-7-47	Alicia, Arkansas	Captured, wing bro-
38-671985	8-4-38	7-18-47	Campobello Id., N.B.	Injured ken
Ad.38-672367	8-27-38	6-29-47	<u>Kent Id., N.B., Canada</u>	Collected
Ad.38-672535	8-15-38	6-29-47	<u>Kent Id., N.B., Canada</u>	Jacked, released with band
38-672720	7-11-43	7-4-47	Fire Id., Oceanside, N.Y.	Found dead
39-654772	7-31-43	6-18-45	Greenwich, Conn.	Found dead

Number	Banded	Recovered	Place of Recovery	How Recovered
39-657892	No Record	7-29-47	Quick's Hole, Mass.	Found dead
39-659872	7-23-39	6-8-47	Kent Id., N.B., Canada	Found dead
39-660491	7-27-39	12-22-46	Baltimore, Maryland	Found dead
39-662389	7-17-43	2-4-47	North Head, Grand Manan	Ill-cared for until able to fly, band removed
39-662741	7-28-43	6-24-47	Provincetown, Mass.	Found dead
42-639348	7-26-44	1-3-48	Asbury Park, New Jersey	Found dead
42-640008	7-24-44	4-14-47	Newport News, Virginia	Found
42-640040	7-24-44	10- -46	Jones Beach, New York	Found
42-640140	7-24-44	11-5-46	Rehoboth, Massachusetts	Shot
42-640408	7-24-44	7-3-48	Chatham, Massachusetts	Found sick-died
42-640559	7-29-44	2-11-47	Swampscott, Mass.	Found dead
42-640594	7-29-44	4-18-27	Edgemere, New York	Found dead
42-640916	7-26-44	4-8-44	Calais, Maine	Found dead
Ad. 42-655146	6-30-47	6-10-48	Kent Id., N.B., Canada	Jacked & released
42-655332	8-24-45	1-30-47	St. Petersburg, Florida	Weak-released
42-655337	8-24-45	4-6-47	Staten Id., New York	Found dead
42-655660	7-3-47	11-4-47	Leonardsville, N.B., Can.	Captured, band removed, released
42-655720	7-3-47	1-17-48	Golden Meadow, Louisiana	Found sick
42-655949	8-11-46	3-23-47	Prince Bay Beach, N.Y.	Found dead
42-655971	8-11-46	11-5-46	Rehoboth, Massachusetts	Shot
Ad. 44-618195	7-21-46	9-13-47	Eastport, Maine	Found weak
Ad. 44-618195	7-21-46	9-15-47	Eastport, Maine	Heavily oiled and very weak
Ad. 44-618243	7-21-46	7-17-47	Kent Id., N.B., Canada	Found dead
Ad. 44-618318	7-22-46	6-10-48	Kent Id., N.B., Canada	Jacked & released
Ad. 44-618318	7-22-46	6-29-47	Kent Id., N.B., Canada	Jacked & released
Ad. 44-618345	7-22-46	4-4-47	Sandy Cove, Digby Co., N.S.	Found dead
Ad. 44-618398	7-22-46	7-5-48	Sheep Id., N.B., Canada	Found dead
Ad. 44-618444	7-22-46	10-1-47	Long Beach, L.I., N.Y.	Found dead
Ad. 44-618484	7-22-46	6-4-47	Kent Id., N.B., Canada	Wing broken-killed
Ad. 44-618577	7-22-46	6-19-48	E. Ferry, Digby Co., N.S.	Found dead
Ad. 44-618612	7-23-46	7-20-48	Eastport, Maine	Shot-found dead
44-618717	7-6-47	3-29-48	Biloxi, Miss.	Found dead
44-618821	7-27-46	11-26-47	Quincy Yacht Club, Mass.	Shot-found dead
44-619022	7-7-47	12-22-47	Savannah, Georgia	Caught alive
44-619351	7-14-47	11-21-47	Rock Hall, Maryland	Found disabled
44-619360	7-14-47	8-6-48	Boston, Massachusetts	Found dead
44-619467	7-18-47	10-25-47	Graham, North Carolina	Shot
44-619520	7-20-47	3-18-48	Marshallberg, N.C.	Came on boat-tame
44-619534	7-21-47	6-15-48	Marshall's Town, N.S.	Shot
44-619769	7-21-47	1-29-48	Pascoquida River, Miss.	Caught alive
44-619807	7-22-47	7-9-48	Linden, New Jersey	Found wounded, died
44-619891	7-22-47	3-14-48	Boca Chica, Texas	Found dead
44-619973	7-23-47	12-25-47	Coranada Beach, Florida	Found dead
44-621965	7-15-46	3-31-47	Jones Beach, Nassau, L.I., N.Y.	Found dead
47-613047	7-23-47	8-16-48	Brooklyn, New York	Found dead
47-613078	7-23-47	4-30-48	Showomeh, Rhode Island	Shot-found dead
47-613097	7-23-47	1- -48	Brooklyn, New York	Found dead
47-603032	7-27-47	10-3-47	Eastport, Maine	Covered with fish oil could not fly

Number	Banded	Recovered	Place of Recovery	How Recovered
47-613157	7-27-47	9-28-47	Cape Sable Id., N.S.	Seen alive caught
47-613198	7-27-47	11-20-47	Albemarle Sound, N.C.	Caught in fish net
47-613244	7-28-47	7-23-49	Judith, Rhode Island	Killed by boys
47-613346	7-29-47	1-16-48	E. Northport, L.I., N.Y.	Caught unable to fly
47-613552	7-30-47	2-19-48	Couch Key, Florida	Shot-found dead
47-613777	7-30-47	1-8-48	Lavallette, New Jersey	Found dead

(Numbers preceded by Ad. were banded as adults, all others as young of the year)

GREAT BLACK-BACKED GULLS

35-601611	7-9-45	8-29-48	Point Judith, Rhode Id.	Exhausted condition
36-714726	7-24-36	11-24-42	Washington, Maine	Shot
39-646703	6-29-39	7-22-46	<u>Kent Id., N.B., Canada</u>	Jacked and released new band 35-601730

LEACH'S PETREL (Adults)

Outer Wood Island

34-124769	8-7-38	July-47	Outer Wood Id., N.B.	Bird released
35-124459	7-31-35	July-47	Outer Wood Id., N.B.	Bird released
46-117257	7-19-46	July-47	Outer Wood Id., N.B.	Bird released
46-117263	7-19-46	July-47	Outer Wood Id., N.B.	Bird released
46-117264	7-19-46	July-47	Outer Wood Id., N.B.	Bird released
46-117266	7-19-46	July-47	Outer Wood Id., N.B.	Bird released
138-112038	8-13-38	July-47	Outer Wood Id., N.B.	Bird released

Kent Island

36-144478	7-19-38	7-21-47	Kent Id., N.B., Canada	Bird released with band 138-112308
46-115382	7-15-46	7-18-47	Kent Id., N.B., Canada	Bird released
46-115397	7-19-46	8-9-47	Kent Id., N.B., Canada	Bird released
46-115452	7-6-46	8-7-47	Kent Id., N.B., Canada	Bird released
46-115453	7-7-46	7-18-47	Kent Id., N.B., Canada	Bird released
46-115455	7-7-46	8-7-47	Kent Id., N.B., Canada	Bird released
138-112502	7-12-46	7-9-48	Kent Id., N.B., Canada	Bird released

TREE SWALLOW (Adults)

37-95547	7-8-47	6-5-48	Kent Id., N.B. Canada	Bird released
37-95551	7-9-47	6-9-48	Kent Id., N.B. Canada	Bird released
47-14626	6-29-47	6-8-48	Kent Id., N.B. Canada	Bird released

Clubionidae

Female *Micaria gentilis* Banks

Male and Female *Clubiona riparia* C. L. Koch

In connection with the above list of Kent Island spiders, it is interesting to note the five spiders collected by Miss Elisabeth Deichmann and Miss Helene Robinson at Grand Manan late in June 1946.

Lycosidae

Male *Pardosa mackenziana* (Keys)

Thomisidae

* Male *Philodromus rufus* Walck.

Argiopidae

* Female *Cyclosa conica* (Pallas)

Linyphiidae

* Male *Linyphia marginata* C. L. Koch

Salticidae

* Male *Salticus scenicus* (Clerck)

The collections are too small to draw any satisfactory conclusion about distribution, but undoubtedly, intensive collections at Grand Manan and its secondary islands, would reveal many more species, for the islands have a varied terrain and moisture so necessary to spider life, and probably support an abundant insect fauna which supplies the necessary food. It is possible that a spider fauna of about 200 species could be found. Of these, fully half would undoubtedly be very small and would be found in low grass and under dead leaves.

For further reference, those interested are referred to J. H. Emerton's *Common Spiders*, 1902 and Gertsch revision of *Comstock's Spider Book*, 1940.

THE "IRIS SPIDER" OF KENT ISLAND

By
Elizabeth B. Bryant

Museum of Comparative Zoology, Cambridge, Massachusetts.

Recently Mr. H. S. Shaw called my attention to the nest of a spider found in the iris leaves in a swamp at Kent Island, Grand Manan, New Brunswick. At his suggestion, a collection of spiders from there was made during late July and early August of 1947 by Mr. R. A. Paynter, Jr., and sent to me. Nine adult species were found including numerous specimens of the "Iris Spider."

This proved to be Clubiona riparia C. L. Koch, named from a female found in Maryland and since collected as far north as Anticosti Island in the St. Lawrence River. The genus is world wide; neither male or female spinning a web to snare their prey, but remaining partly hidden under a leaf or in a crevice where they construct a thin tube of silk. From the number of males caught at night in light traps, it would seem that the male wanders at night in search of a mate. The female of Clubiona riparia living near a bed of iris, uses an iris leaf to form a triangular box by bending the leaf twice, when inside, she fastens the edges of the leaf by a web, shutting out the world completely. In this restricted space, she makes a loose web and lays her eggs and eventually dies. The eggs are safe from insects and birds and best of all, are protected from the weather. For in the fall, the iris leaf becomes hard and dry and is a rain proof covering. In the spring, the young spiders escape and start another cycle.

Described in 1866, Cludiona riparia C. L. Koch, was redescribed as Clubiona ornata by J. H. Emerton in his paper on the "New England Drassidae and Agelenidae" in 1889. The female is from 8.00-10.00 mm. long, pale, with a darker pattern on the abdomen. The male is smaller, with the same coloring and longer legs. Most of the species of the genus are pale and have no abdominal markings.

The nine species collected by Mr. Paynter from Kent Island are scattered through six families. The species marked by an asterisk (*) are common to both Europe and North America.

Gnaphosidae
Female Gnaphosa brumalis Thorell
Theridiidae
Female Steatoda borealis (Hentz)
Linyphiidae
Male Erigone atra Blackwall
Argiopidae
* Female Aranea patagiata Clerck
* Female " scoletaria Clerck
Female " trifolium (Hentz)
Lycosidae

BLACK GUILLEMOT (Adult)				
Number	Banded	Recovered	Place of Recovery	How Recovered
36-509792	7-10-46	8-1-48	Kent Id., N.B., Canada	Bird released

BIRDS OBSERVED AND SPECIES POPULATIONS OF KENT ISLAND

By H. Elliott Winn, Bowdoin, '48

The following birds were observed on Kent Island during the period from June 4, 1947 to August 15, 1947. R indicates the birds are resident, T transitory.

- June 4: Catbird, R; Herring Gull, R; Great Black-backed Gull, R; Eider, R; Black Guillemot, R; Black-poll Warbler, R; Myrtle Warbler, R; Barn Swallow, R; Cliff Swallow, R; Tree Swallow, R; Bank Swallow, R; Brant, T; Spotted Sandpiper, R; Starling, R; Savannah Sparrow, R; Song Sparrow, R; Great Blue Heron, T; Robin, R; Golden-crowned Kinglet, R.
- June 5: Crow, R; Kingbird, T; Yellow Warbler, R; Black-crowned Night Heron, ?; American Redstart, R; Black-capped Chickadee, R; Slate-colored Junco, R.
- June 11: Raven, R; Willet, T; Alder Flycatcher, R; Double-crested Cormorant T.
- June 21: Leach's Petrel, R; American Bittern T.
- June 24: Marsh Hawk, T; Northern Yellowthroat, R; Wood Pewee, ?.
- June 25: Lincoln Sparrow, R; Olive-backed Thrush, R; Winter Wren, R.
- June 28: Wilson's Snipe, T.
- June 29: Vesper Sparrow, R.
- July 11: Dowitcher, T.
- July 18: Northern Phalarope, T.
- July 20: Lesser Yellow-legs, T; Least Sandpiper, T; White-rumped Sandpiper, T.
- July 22: Greater Yellow-legs, T; Least Sandpiper, T; White-rumped Sandpiper, T.
- July 26: Duck Hawk, T; Black Duck, R.
- July 30: Ruddy Turnstone, T; Semipalmated Plover, T; Marbled Godwit, T; Baird's Sandpiper, T.
- Aug. 3: Knot, T. Aug. 8: Black-bellied Plover, T.

It is desirable that a census be made of the birds at Kent Island each year to determine the population trends of the various species, especially of the nesting birds.

In the following list of nesting birds the numbers followed by a D represent actual counts and a ? indicates a doubtful status.

The maximum populations are from reports recorded in Kent Island bulletins. I am indebted to Mr. Ernest Joy for assistance in determining the increases and decreases of the present populations compared with conditions during the past twenty years.

Species	Previous Maximum Population	Number of Nesting Pairs in 1947	
Alder Flycatcher	1	3	Increase
American Eider	1,000	2,000	Increase
Black-capped Chickadee		25	Same
Black-crowned Night Heron		1 ?	?
Black Duck	12+	15	Same
Southern Black Guillemot		50 <u>D</u>	?
Catbird		1 <u>D</u>	
Crow	4	20	Increase
Golden-crowned Kinglet		?	Increase
Gull, Great Black-backed	26	35 <u>D</u>	Increase
Gull, Herring	15,000	15,000	Same
Junco, Slate-colored		?	
Leach's Petrel		5,000	Same
Olive-backed Thrush		1 <u>D</u>	
Raven	1	1 <u>D</u>	
Robin		15	Same
Sparrow, Savannah		200	Decrease
Sparrow, Song		15	Same
Sparrow, Vesper		?	
Sparrow, Lincoln's		1	
Spotted Sandpiper		6 <u>D</u>	Decrease
European Starling		30	Increase
Swallow, Bank	50	20 <u>D</u>	Decrease
Swallow, Barn	12	5 <u>D</u>	Decrease
Swallow, Cliff		22 <u>D</u>	Decrease
Swallow, Tree	63	22 <u>D</u>	Decrease
Warbler, Black Poll		50	Same
Warbler, Myrtle		?	
Warbler, Northern Yellowthroat		2 <u>D</u>	
Warbler, Yellow		3 <u>D</u>	Same
American Redstart		50	Same
Winter Wren		2.	
Wood Pewee		?	

General Comments

Three pairs of Alder Flycatchers nested on Kent Island in 1947 whereas only one nest was discovered during the previous year.

The American Eider has continued to increase its numbers steadily during the past seventeen years. In 1930 there were only twenty nesting pairs, in 1937 three hundred nests were located. In 1937 a detailed census revealed 1,000 pairs of Eiders in the Kent Island colony and this year (1947) we estimated that 2,000 pairs were nesting. If this estimate is correct it means that today there are 100 times the number of eiders that were nesting in 1930.

The Black-capped Chickadee seems to maintain a constant population whereas the Acadian Chickadee was not seen during the summer of 1947. In previous years it was well represented on the island.

Black-crowned Night Herons were regularly seen and although we were unable to find a nest it probably nested for the first time during the season of 1947.

The Black Duck increased during the 1930's but since 1943 the population has remained constant.

In 1930 only a few Black Guillemots nested on Kent Island but by the construction of artificial nesting sites of slabs of rock the numbers increased to an estimated seventy pairs in 1936. The estimate of seventy nesting pairs is probably too great as the non-breeding birds were included in that census. In 1946 and 1947 fifty nests were located.

The crow has increased from four birds in 1943 to twenty pairs in 1947. Although it is desirable to maintain natural conditions on the island it may become necessary to exert some control on this species. The crows are doing considerable damage to Savannah Sparrows, Black-poll Warblers and other species. It was not unusual to see a band of twenty crows roving the island with an intent to plunder.

The Great-Black-backed Gull has been steadily increasing from the one pair nesting in 1930 to three pairs in 1935, four in 1936, twelve in 1937, twenty-six in 1946 and thirty-five pairs in 1947. This steady increase of a large aggressive species apparently has had no ill effects on the other bird life as has been evident along the Maine coast.

There has been no great change in the status of the Herring Gull since the 1940 census of 15,000 pairs.

The Leach's Petrel while not increasing is maintaining its large numbers on Kent Island.

The usual pair of Ravens nested on the island again this year but they were not successful in raising their brood.

The Savannah Sparrows have declined in numbers during the last two years due in great part to depredations by crows and herring gulls.

There has been a noticeable decrease in the number of Spotted Sandpipers during the last three or four years.

The Starling has greatly increased during the last fifteen years. They have completely driven the Flickers from the island and are competing with species which nest in holes or in bird boxes.

There has been a considerable decrease in the Barn Swallow population. In 1943 there were fifty nesting Bank Swallows. The 1947 census shows a sharp decline in their numbers, due primarily to the soil erosion of the eastern bank of the island, the chief nesting site of these birds. The Cliff Swallows have declined in numbers in spite of the fact that Mr. Joy, the warden has kept them supplied with clay for building material. More suitable nesting sites should be provided for them by nailing 2 X 4 strips in proper places on the various buildings.

Sixty-three pairs of Tree Swallows nested in seventy boxes in 1938 and twenty-two pairs nested in thirty boxes in 1947. During the summer of 1948 fifty new boxes were added which will undoubtedly increase the Tree Swallow population at the station.

Nestling Mortality Rate
of the Tree Swallow

By H. Elliott Winn, Bowdoin'48

At the Bowdoin College Biological Station, Kent Island, New Brunswick, Canada, I carried on the banding project of the nesting Tree Swallows. Between June 29 and July 11, 1947, ninety-eight nestlings and seven adults were banded on the Island. At the same time a record was kept concerning the clutch size, egg mortality and nestling mortality of the nesting pairs. Out of thirty bird boxes on the Island, twenty-two were occupied by Tree Swallows. The first young flew on July 7, 1947.

The chart on page 2 gives the number of eggs laid, the eggs that hatched and the nestlings that attained the flight stage. What mortality, if any, was incurred while the young were first practicing to fly was not determined.

The average clutch size was 5.2 eggs per nest while exactly eleven or fifty per cent of the total clutches contained six eggs each. There was no reason to believe that the four nests representing clutches of two, three and four eggs ever contained more. Fifty per cent of the total nests had the full clutch hatch and all the nestlings reached the flying stage.

Out of a total of one hundred and fourteen eggs laid only six eggs failed to hatch representing a 5.3 per cent egg mortality. Nine nestlings out of a total of one hundred and eight, died, representing an 8.3 per cent nestling mortality.

CHART: Nest No.	Eggs Laid	Eggs Hatched	Young Flew
1	5	5	2
2	5	5	5
3	6	6	6
4	6	5	5
5	6	6	6
6	5	4	4
7	2	2	2
8	6	6	6
9	6	6	6
10	6	6	6
11	6	6	6
12	6	6	6
13	5	5	5
14	5	5	3
15	4	4	2
16	6	6	5
17	5	4	4
18	3	3	2
19	4	3	3
20	5	5	5
21	6	4	4
22	6	6	6
Total	114	108	99
Average	5.2	4.9	4.5

Thus the total mortality from the egg laying to the flight stage was 13.2 per cent.

The bird houses had not been cleaned out for several years and many had holes in them through which rain could easily reach the nests. In consideration of the condition of the nesting boxes, the mortality rate seems to be fairly low.

Duck Hawk

By H. Elliott Winn

The following incident occurred August 11, 1947 at the Bowdoin College Scientific Station.

Ernest Joy, the resident warden, and I were rowing along the shore when suddenly a Duck Hawk swooped out of the trees toward five unsuspecting Black-bellied Plovers feeding along the shore. Before the Plovers had moved barely six inches off the ground, the hawk grabbed one in its claws and immediately flew off with its prey to the neighboring woods.

In Ernest Joy's past twenty years at Kent Island, he has frequently seen flocks of Black-bellied Plovers decimated by the Duck Hawk.

Stomach Contents of a Marsh Hawk

By H. Elliott Winn

An adult male Marsh Hawk was collected at the Bowdoin College Scientific Station on August 9, 1947. This hawk had been visiting the Island regularly for about a month. The total contents of the food remains consisted of one skull, six legs, six wings, and some feathers. Two of the legs and a few feathers were located in the crop, while the remainder was found in the intestine. Four of the legs and four of the wings were identified as the remains of two Savannah Sparrows. The skull and the other wings and legs were parts of a Semi-palmated Sandpiper. The identifications were checked by Mr. Allen Moses of Grand Manan Island, New Brunswick, Canada.

MUSKRATS

The Muskrats appeared on Kent Island for the first time in 1941. After two years they became so numerous that Mr. Ernest Joy, the warden, was permitted to trap them in 1943 and each season since that time. (See Kent Island Bulletin, No. 10, April 1, 1947, pp. 16-18)

Mr. Joy reports that at present the muskrat burrows, tunnels and runways are to be seen in all parts of the island. In spite of his trapping of 618 muskrats during the past 6 seasons their numbers appear to be much greater with each succeeding year.

The numbers and sexual ratios of the muskrats trapped are shown in the following table.

Year	Males	Females	Totals
1943	13	0	13
1944	29	6	35
1945	60	15	75
1946	51	50	101
1947	102	89	191
1948	101	101 (1 sex ?)	203
Totals	356	261	618

Mr. Joy states that since the muskrats have become so numerous many hawks, especially Marsh Hawks have been seen on the island. He has found many muskrats that have been killed and partially eaten by the hawks. He has also found it necessary to conceal his traps so that the trapped animals cannot be found and mutilated by the hawks.

CONTRIBUTIONS

In addition to the Annual Reports and Bulletins of the Bowdoin Scientific Station the following contributions have been published.

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7. Gross, Alfred O.
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12. Gross, Alfred O.
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15. Gross, Alfred O.
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18. Gross, Alfred O.
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1947. The Black Guillemots of Kent Island. Bull. Mass. Aud. Soc., 31 (4): 160-162. (4 illus.)

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32 (2): 43-46. (3 illus.)

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