

NARRATIVE REPORT  
MORTON NATIONAL WILDLIFE REFUGE  
JANUARY - DECEMBER, 1972

REFUGE PERSONNEL

|                                  |                               |
|----------------------------------|-------------------------------|
| George E. Gage.....              | Refuge Manager-in-Charge      |
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The Morton National Wildlife Refuge is administered through the Target Rock National Wildlife Refuge, located 55 miles to the west at Huntington, Long Island, New York.

UNITED STATES DEPARTMENT OF THE INTERIOR  
FISH & WILDLIFE SERVICE  
BUREAU OF SPORT FISHERIES & WILDLIFE  
SUFFOLK COUNTY, SAG HARBOR, NEW YORK

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I. GENERAL

A. Weather Conditions.

| <u>Month</u> | <u>Precipitation</u> |              |               | <u>Temperature</u> |                |
|--------------|----------------------|--------------|---------------|--------------------|----------------|
|              | <u>Snowfall</u>      | <u>Total</u> | <u>Normal</u> | <u>Maximum</u>     | <u>Minimum</u> |
| January      | 3.00                 | 2.68         | 4.20          | 54                 | 5              |
| February     | 7.30                 | 5.75         | 3.59          | 55                 | 9              |
| March        |                      | 5.79         | 4.61          | 55                 | 13             |
| April        |                      | 4.40         | 3.62          | 67                 | 25             |
| May          |                      | 6.13         | 3.44          | 74                 | 40             |
| June         |                      | 5.55         | 2.88          | 78                 | 40             |
| July         |                      | 1.99         | 2.92          | 90                 | 51             |
| August       |                      | 1.29         | 4.42          | 89                 | 53             |
| September    |                      | 4.44         | 3.67          | 83                 | 44             |
| October      |                      | 4.63         | 3.55          | 44                 | 26             |
| November     |                      | 6.78         | 5.44          | 65                 | 21             |
| December     |                      | 6.66         | 4.10          | 59                 | 19             |
| Totals       | 10.30                | 56.09        | 46.44         | Extremes 90°       | 5°             |

The total rainfall is contrasted with the normal this year. Most beneficial increases from rainfall are greatest in the months of low evaporation and transpiration. It is critical to the East End that increases occur on unfrozen ground in these months. The gains are little when coupled to our increasing year-round population and the lack of catch basins in poorly laid out developments.

The lack of ice on the foreshore of the peninsula during the winter months this year occasioned more bluff erosion than has been had for several years. When gale force winds occurred under these conditions with resultant high tides, the sloughing averaged as much as 15 to 20 feet at a right angle to the vertical height of the slope.

On December 16, winds of 60 miles per hour caused much soil erosion on nearby potato lands where October rains had prevented planting of a good cover crop.

Data on rainfall, temperatures and winds was obtained from Mr. Richard G. Hendrickson, operator of the official Bridgehampton Cooperative Weather Station.

## B. Habitat Conditions.

1. Water. Very little ice occurred on adjoining bays and harbors this year. The wintering black duck population was unaffected. Despite low rainfall in July and August, the freshwater pond ceased flowing for only a very short period.
2. Food and Cover. As usual, cover was excellent. Wild fruits were about average with the exception of the prolific and aggressive Tartarian honeysuckle (Lonicera tatarica). Mast was non-existent.

## II. WILDLIFE

### A. Migratory Birds.

1. Waterfowl. Despite open water, the wintering black duck population was slightly lower than previous years. Icing tends to concentrate their numbers, just as winds, tides and visitor use tend to disperse them. July was the earliest recording of this species in any numbers but they soon disappeared with the crush of recreationists.

Our one pair of nesting Canada geese were again unsuccessful due to predators or public disturbance.

2. Other Marsh and Water Birds. There was a marked decrease in the number of herons in July and August. The most common heron was the snowy egret. They not only foraged in the wetland areas, but on the beach at the tide mark.
3. Shorebirds, Gulls and Terns. The first recording of the oyster catcher was made in the spring. Nesting now on Gardiner's Island to the east, more sightings can be expected during the migratory season. The east spit at the refuge would be a good nesting area, but the bird is too wary to put up with the high number of boat landings on that side. Whimbrels were observed more frequently than usual during the fall migration.

One pair of piping plover succeeded in raising young. Terns were unsuccessful. Gulls did not attempt to nest.

4. Doves. Doves were seen regularly, and although their nestings are scattered, they seemed concentrated in the red cedar succession in the old field. The highest count was 22 birds during the fall.

B. Upland Game Birds.

Pheasants have been scarce. Bobwhite quail coveys used the refuge; about 12 are present in the bluff woods and a maximum of 15 birds were observed on the mainland. Both of the above species are frequently heard calling during the breeding season. A single grouse was flushed from a dense canopy of bittersweet (Celastrus scandens) during September.

C. Big Game Animals.

A yearling male, white-tailed deer was killed by dogs in January. An old male was seen thereafter and occasional tracks were observed until October, but none have been seen since that time.

D. Fur Animals, Predators, Rodents and Other Mammals.

Dogs and cats are an increasing nuisance. At least four "neighbors'" dogs, three of them hunters, roam the area despite warnings to their owners. Five cats, two of which are collared, roam the mainland section of the refuge.

E. Hawks, Eagles, Owls, Crows, Ravens and Magpies.

The American kestrels successfully fledged three young from the nest box again.

The ospreys chose to occupy the old cedar tree site in the brackish pond - a very vulnerable spot. A student from Southampton College doing a behavior study said that during a heavy public use weekend in May, they were constantly disturbed by photographers, birders and strollers, despite signs on the east and west approaches which had been erected to protect the birds from the thoughtless. The birds deserted, broken eggs were found beneath the nest and tracks indicated human disturbance. A copy of the student's unpublished paper is appended.

A single snowy owl was seen in January.

The resident great horned owls did not nest on the refuge this year, although they were present on and off throughout the year.

At the close of the year three common crows were left from the family of five that regularly patrol the refuge.

F. Other Birds.

The revision of the Morton Bird List was completed during the year and, as is always the case, new species arrived shortly thereafter. Blue-gray gnatcatcher, Acadian flycatcher, Nashville warbler and Philadelphia vireo were added to the refuge's listing, bringing the total to 226 species. The red-bellied woodpecker is still seen occasionally on the refuge.

G. Fish. No unusual runs or sightings.

H. Reptiles.

Northern diamondback terrapins appear to be holding their own in the lagoon. Their relationship to the beds of eelgrass is quite marked. No Atlantic Ridley turtles were found this year.

I. Disease. None noted.

III. REFUGE DEVELOPMENT AND MAINTENANCE

A. Physical Development.

The removal of the cottage, with filling and seeding of the cellar hole, was completed.

Approximately 1,600 feet of snow fence was erected, not only to protect the dune area but to collect sand blowing from the dredging done in 1969. Hopefully, the low section of the peninsula will restabilize itself before a storm washes out a section of beach and makes the bluff area an unprotected island.

The old contact booth was moved and altered into a lean-to with additional interpretive space, extending the utility of the building a few years and better facilitating public use. The muscle work was accomplished with the help of Target Rock personnel. The interior was painted and additional displays and interpretive materials were added.

B. Plantings.

Dr. Hehre, botany professor at Southampton College, donated a whip plant of bald cypress (Taxodium distichum), one of several he found growing on the shore of a nearby pond.

C. Collections and Receipts.

No specimens were collected on the refuge. Twelve box turtles were brought in by Professor Hehre of Southampton College for release.

D. Control of Vegetation.

Some control of vegetation was accomplished with the use of the tractor/mower from Target Rock, hauled on an ancient rack truck borrowed from Montezuma NWR. Unfortunately, meadow disking could not be accomplished in proper season because of the lack of necessary equipment. Funding was not adequate to allow contractual disking and mowing this year.

Bio-Technician Webb did a considerable amount of trail trimming, despite his susceptibility to poison ivy.

The first sighting of purple loosestrife was made during July.

E. Planned Burning. None.

F. Fires.

Fire danger was not high during the fall months and no fires occurred.

IV. RESOURCE MANAGEMENT

Not applicable.

V. FIELD INVESTIGATIONS OR APPLIED RESEARCH

Not applicable.

VI. PUBLIC RELATIONS

A. Recreational Use.

A total of 119 groups, including 2,578 individuals, visited Morton during 1972. The manager lead 84 groups in conducted programs. Almost all of the groups were involved in environmental education

activities. The total increment of use is slightly over last year's by actual registration. A traffic counter installed in August is a fair indicator - better for cars than people - as the parking lot tallys show. Of 14,149 visitations, 1,731 recreational visits were from boaters, making it much more difficult to maintain an attractive wildlife-oriented refuge. In July, August and September, 4,398 people came solely for the purpose of using the beach - hardly wildlife-oriented. A spot check for the month of July revealed only three Southampton beach stickers on cars. The Suffolk County Parks Department operates a beach to the west at Shinnecock Canal and one to the east at Cedar Point Park. Directly northwest across the channel from Morton is another, Cedar Beach. The Town of East Hampton has 34 beaches, many of which are available to non-residents for a fee; Southampton has eight ocean beaches and one freshwater one at Big Fresh Pond. According to a recent edict by the Southampton Town Trustees' attorney, Morton is, in essence, a private beach, and the Bureau is within its rights to eliminate this type of recreation. However, although we can officially designate the refuge as closed, additional signs, personnel and enforcement patrols would be required since, on occasion, over forty boats may beach along the refuge's four-mile shore for swimming, sunbathing or picnicking - a seemingly unsolvable dilemma under current funding. In the meanwhile, we continue to park cars, patrol as we can and watch the futile nesting attempts of waterfowl, shorebirds and the osprey.

At no little expense, portable latrines were installed and serviced at the foot of the beach access trail, one-half mile from the parking area. This was done primarily because of a formal "complaint" issued by one pair of objectionable visitors in 1971. These chemical toilets were an eyesore to summer visitors liking the wild aspects of Morton, but, unfortunately, this class of visitor is not usually a letter-writer. One of these outhouses was turned over in July and the labels designating use were removed. Although located only 100 feet from the beach, it is incredible that a woman visitor was observed urinating on the trail between these toilets and the beach.

The photo section shows these typical summer recreationists struggling down the half-mile trail to the beach with their assorted paraphernalia. At some point, we are going to have to control this.

An inordinate amount of time was spent in picking up all forms of litter, from baggies to discarded plastic boats. As usual, after the leaves fell, many bottles and cans were found in the "pucker-brush" along the trail.

## B. Refuge Visitors.

Special visitation was made by Bureau personnel, St. John's College, Southampton College, Dowling College, North Carolina State University, New York State Department of Environmental Conservation, New York State Department of Agriculture, USDA - Animal Health Division and Soil Conservation Service, Suffolk County Parks Department, The Nature Conservancy and the curator of the herbarium of Planting Fields Arboretum.

Inquiries were numerous on natural history matters.

## C. Refuge Participation.

The manager was elected as President of the Friends of Southampton College Library, finished his term of office with the Sag Harbor Conservationists and is serving as delegate to the East End Council of Conservation Organizations, being a member-at-large on wetlands flora and fauna. The Bridgehampton Biology Class made the manager an honorary member of their chapter of the Future Scientists of America.

Assistance in pre-school environmental teaching was given to a group making films and tapes for the National Education Society and HEW, at Morton and Amagansett.

Robert Brewster, Suffolk County Extension Agent, USDA, was loaned over sixty slides for reproduction on a slide show to depict Morton's attractions.

Henry Billing, East End Chapter of The Nature Conservancy, reviewed Morton's and the manager's slide collection for photography which was incorporated in a multimedia environmental appraisal of the South Fork, entitled "It's Not Too Late", shown at the Guild Hall, East Hampton, from September 2 through October 1, and at the New York State University at Stony Brook, Long Island, through the month of December. Several thousand persons saw this exhibit.

Photographs were loaned and information given on the glacial kettles south of the refuge for articles in the New York Times, Southampton Press and East Hampton Star.

A professional photographer, Ralph Bruderer, was given assistance on yet another book on the refuge system, The Sign of the Flying Goose, to be published by Doubleday.

"Notes from Morton Refuge" were shifted to the East Hampton Star. Nine were accepted and published during the year. Other articles on the refuge appeared in Long Island newspapers.

D. Hunting. None.

E. Violations.

The use of the refuge by purely casual boating recreationists does not help problems occurring with limited summer staffing. Despite signs and patrols by Bio-Technician Webb, sometimes to sundown, there were violations involving a variety of miscellaneous trespassing and camping by persons from Nassau Point which is a few miles distant on the North Fork. It matters little if these types are occupants of a yawl running to five figures or a rowboat with an outboard. The attitude being, "If it is public land, it's mine to do with as I please" - so said a young woman with a great armload of fragile sea lavender which had been yanked up by the roots.

In relation to the above, information gathered from the New York State Division of Motor Boats for 1969 (the only recent year tallied) showed there were 438,000 boats registered in the state; 60,000 for Suffolk County alone. An influx of 10-15% trailered boats can be expected from elsewhere, not counting registrations from Connecticut and New Jersey. Our problems will continue.

F. Safety.

Information was reviewed as received. Three staff/safety meetings were attended at the Target Rock facility.

## VII. OTHER ITEMS

A. Items of Interest.

Girl Scouts sailing to Shelter Island and caught in a violent thunderstorm were given permission to stay in the wildlife interpretive center overnight before continuing on their course.

A young woman from Dowling College, Ann Fahner, drowned while scuba diving about  $\frac{1}{4}$  mile off the beach on May 17. The most experienced of the divers had left the trio and probably could have averted the panic which is believed to have caused the girl to drown. Refuge Manager Schmid, who had photographed the group as they checked out their equipment prior to entry into the water, assisted

in the search for and recovery of her body.

Help was given the refuge on weekends in July and August by the Neighborhood Youth Corp. Two young people from low income families were hired by the corp to give assistance at this area since the public benefits. It is hoped that this program can be continued during future years as these youth are a valuable aid.

Biological Technician Lee Webb proved to be very valuable during the refuge's period of heavy public use, maintaining strict control, yet, excellent rapport with the visiting public. At the termination of his assignment, he moved to West Virginia to continue his education while undertaking a woodcock study for that state.

Credit for this narrative goes primarily to Refuge Manager Frederick Schmid who also contributed to the photography section and wrote the appended "Notes from Morton Refuge" in which his glib style and extensive knowledge of the subject matter are recognized. By the many favorable comments that we receive regarding these articles, Fred must have quite a following of East End readers. Additional photography was provided by Biological Technician Lee Webb. The report was edited by Refuge Manager George Gage and typed and assembled by Clerk-Typist Michele Sleva.

- B. NR Forms. Appended.
- C. News Articles. Appended.
- D. Photographs. Appended.

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Reviewed by:

Submitted by:

|           |       |                      |                |
|-----------|-------|----------------------|----------------|
| _____     | _____ | <u>George E Gage</u> | <u>1/29/73</u> |
| Signature | Date  | Signature            | Date           |

NRs Checked in R.O. by: \_\_\_\_\_

3-1978 (NR-12)  
(9/63)

Bureau of Sport Fisheries and Wildlife

Refuge  
Morton NWR

ANNUAL REPORT OF PESTICIDE APPLICATION

Proposal Number  
TR-72-4

Reporting Year  
1972

INSTRUCTIONS: Wildlife Refuges Manual, secs. 3252d, 3394b and 3395

| Dates of Application | List of Target Pests(s)                          | Location of Area Treated                                    | Total Acres Treated | Chemical(s) Used | Total Amount of Chemical Applied | Application Rate         | Carrier and Rate | Method of Application    |
|----------------------|--|---|---------------------|------------------|----------------------------------|--------------------------|------------------|--------------------------|
| (1)                  | (2)  | (3)   | (4)                 | (5)              | (6)                              | (7)                      | (8)              | (9)                      |
| 6/27/72              | Mosquitoes:<br><u>Aedes</u><br><u>solicitans</u> | Morton Refuge at<br>Sag Harbor, salt<br>and woodland marsh. | .1                  | Flit MLO         | 2 oz.                            | MLO at NTE<br>3 gal./ac. | None             | Topical ground<br>spray. |

10. Summary of results (continue on reverse side, if necessary)

Periodic field surveys were maintained throughout the summer. Abate 4E was also approved for use but none was required on this property.

This limited spraying operation was carried out by the Suffolk County Mosquito Control Commission, under approved chemical control proposals which were authorized on Special Use Permit - TR-72-4.

Behavior and Problems of the  
American Osprey

Comparative Psychology  
Dr. K. Jackman  
presented by  
M. McCafferty  
Mark Reitman

## General Information:

The American Osprey, *Pandion Haliaeetus Carolinensis* (Gmelin), is a subspecies of a bird of prey which has a worldwide distribution. It maintains a wide range over most of the continent, breeding in scattered areas throughout North America and wintering in Central and South America. There are some year-round populations in southern California and a few southeastern states notably Florida. The osprey usually arrives in the southern New England and Long Island area during the last two weeks of march and first week of April. The arrivals are said (Bent, 1937) to coincide with the movements of the alewives, or herring and shad.

The osprey is an endangered species. It's decline started in the 1940's. As an example, there <sup>WERE</sup> an estimated 1,100 active osprey nests dotting the shores from Boston to New York City in 1940; in 1971, investigation showed only 112 (Harwood, 1972). The active nests in 1971 did not produce enough young to keep the population stable. A status survey of the osprey on national wildlife refuges was conducted in Dec. 1971 (Oberheu). The results were as follows: of 107 refuges polled, 14 reported a downward trend, 16 an upward trend and 77 reported stable osprey populations. It must be noted, however, That even though these are optimistic figures a national wildlife refuge is a protected area, free from many problems which plague the osprey not nesting on refuges. It may be that inducing the osprey to nest in protected areas would be one method of sparking

a population increase.

Among many of the natural disasters which the osprey must contend with are storms, collapse of nesting sites, mammals and birds which destroy eggs. Man presents the osprey with more serious objectives. The osprey returns each year to the same nesting site. With the development of coastal areas many are displaced. Disturbance must be considered. The crush of civilization or just the curious may prevent the birds from laying any eggs at all. Or, if once they are laid or hatched people may unintentionally keep the parents away from the nest long enough for the young to perish, either from starvation or exposure. Many osprey have nests near and even on human dwellings. These may become quite tolerant of the family and familiar friends. There is still a disturbance factor with other visitors. Little is known, however, about how often a bird may be flushed from her nest in varying types of weather without interfering with development of eggs. (Schmid 1966). The osprey's tolerance for human activity may be connected to where it winters.

Man has also influenced the rise in the herring gull population. The gull, being a scavenger, jumps at any chance for food, such as unguarded eggs in an osprey nest. Herring gulls will also chase and harass an osprey carrying a fish, sometimes causing the fish hawk to drop his catch.

A decline in the availability of food supply may also contribute to a drop in osprey population. Mansueti and Kolb (1953) found a steady decline in the shad fishing

industry from 1887 to 1949. Overfishing and polluted river waters being major contributors. Lambert (1943) demonstrated that the effectiveness of ospreys in catching fish falls off as the season advances and water temperatures rise. Pound nets, or shallow water fish traps which make large numbers of fish readily available to osprey are being discontinued in many areas. Surely a sustained food supply would contribute to a successful osprey population.

Contaminants in the food chain, particularly chlorinated hydrocarbon insecticides, have been found to interrupt the breeding cycle of the osprey. The insecticides DDT, dieldrin reach the water through run-off or are carried by the wind. DDT is almost insoluble in water, but is readily absorbed by living tissue. As it advances up the food chain its concentration in tissue becomes stronger and more lethal. The osprey feeding on fish with high concentrations of poisons would absorb large quantities of the compounds. Once in the ospreys system the concentrations have a detrimental effect on the breeding cycle. Infertility and the inability of the female to deposit calcium in her eggs causing the eggshells to crack have decimated osprey populations in some areas. Another group of compounds, polychlorinated biphenyls, have been found to kill embryos in the shell and slow up the breeding cycle. The effects of pollutants in combination is still under study. It is still frightening to realize that we, like the osprey, are at the top of the food chain.


Field observations of the osprey were carried out at the Morton Wildlife Refuge.

#### NESTING

There were two nest locations on the refuge. One on the eastern side in a tree on a bluff, and the other in a salt pond. <sup>fig.1</sup> Both nesting sites were open to human disturbance conditions, the salt pond location being more exposed. The ospreys returned approximately April 1st, 2nd and began adding new material to the nest located in the salt pond. The cavity of the nest was lined with seaweeds and marsh grasses.

#### COURTSHIP

First display of mating behavior observed did not involve the observed pair. Both birds were perched in vicinity of the nest when a third osprey circled overhead. The osprey, probably a male, stayed in position over the nest site and began a series of long calls, louder than the alarm call. At the same time flying up and gliding down, repeating this many times.



He would then hover for a few moments and the performance would be repeated. Bent (1937) reported a similar display. The only reaction of observed pair to this display was with the female. She appeared very restless and uttered a few long cheeps, but remained perched.

Bent (1937) states that courtship is a nuptial display consisting of aerial gymnastics in which both sexes indulge. Observations would substantiate this. The observed pair were seen to be soaring in a stiff southerly

wind for long periods. They would let the wind carry them and then soar back to the area of the nesting site. Each time the female would perch and the male would swoop at her, forcing her to the air. On one return the female perched and the male hovered just over her and hit her gently on the back with closed talons. They soared once more, returned to the nest site and perched. Male was seen attempting to mount the female, while she was perched and once on the edge of the nest. At no time in the observations was coital contact made.

#### FEEDING

Ospreys were seen eating at various times of the day, no pattern was apparant. There was only one actual observation of the osprey catching a fish. The male was seen flying back and forth over an inlet, about thirty-fourty feet over the water. He briefly hovered over one spot, folded his wings and plunged into the water, almost completely submerging. He emerged with a small flounder in his talons carrying it head first as noted on all occasions. Spicules on a knob behind each toe help the osprey grasp his slippery catch. Never ~~WERE~~ the birds seen to be eating together. The majority of times the male would perch in a tree away from the nest site and finish his meal.

#### INTERSPECIFIC INTOLERANCE

Birds of many species were seen in close proximity of the nest with no sign of aggressive behavior from the osprey. Mallard ducks, Canadian geese, Red-winged black-birds, starlings, white <sup>eggs</sup> ~~birds~~, blue heron, song sparrows, herring gulls are among the many species which were frequently

seen. Crows were also seen picking up scraps when the osprey was perched in a tree feeding. The only instance of the osprey chasing another bird involved a great blue heron. Bent (1937) lists large herons as potential enemies of the osprey because they have been suspected of eating the ospreys' young.

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An attempt was made to habituate the observed pair to an individual, it was moderately successful. Each day the osprey would be presented with the individual making an appearance in the same spot. To facilitate identification by the ospreys a red headband was worn and the right arm was raised in the air, palm facing the birds. Invariably the osprey would give the alarm as soon as someone came into view of the nest site. After a few days of presentations to the individual coming into view they no longer gave an alarm call. The nest site would then be approached until an alarm call was given. The individual would then take up a position and observe from there. The osprey would quickly ignore the individual and go about their business. Using this method it was possible to approach very close to the nest without disturbance. At all times, the individual was aware of anyone else approaching because of the ospreys alarm call. In conclusion, the osprey definitely become habituated as evidenced by the proximity of observations and the distance at which the osprey would give alarm call to intrusion.

It was apparant that the major problem facing the

observed pair was <sup>2</sup>frequency of disturbance. The problem was intensified on weekends when visitation to the refuge was heaviest. When it was thought that there were eggs in the nest, the female would stay on the nest through all types of weather. The only condition that would put her off was too many people getting too close. She would be in a high state of excitement and move around on the nest before finally taking to the air, still protesting with her screams. In a case like this if the egg shells were thin they could be easily cracked.

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# Notes From Morton Refuge

By F. C. Schmid, Manager

Frederick C. Schmid is manager of the Federal government's Morton Wildlife Refuge on Jessup's Neck at Noyac, and will be contributing notes on nature's events from time to time.

The recent wet snow betrayed the night proggers; proggin' is a south Jersey term for beating around in the puckerbrush, and puckerbrush is a Yankee term for a miscellany of wild native shrubbery. Snow is the great betrayer.

Here we see where the foxes had been engaging in the rites of spring; a raccoon passed there; the interrogation marks of cottontail rabbit went from this cover to that; the neat tracks of a wood mouse came from a tuft of gama grass to the trash barrel; and here is an opossum track with thumb-like telltale prints ambling that way.

Of all our native mammals the 'possum, most of us drop the O, is the only one characterized by a pouch, as in the pouched mammals of Down Under. They are fascinating creatures of evolution, emerging from the stuff of the universe before the upright two-legged destroyer. The common name, opossum, is of Algonquin Indian origin.

## *Didelphis Marsupialis*

The zoological one, if you are not aware of it, is *Didelphis marsupialis*. This name is loosely translated as "double-wombed pouch." This is also confusing, as the birth of the young is as in other mammals. The half-inch naked young crawl into the pouch where they are carried and suckled, until about two and a half months old.

Depending on the number of young, some may never find a place at the lunch counter. Because of this manner of birth and growth, the 'possum is considered a useful laboratory animal for infectious diseases and parasites transmitted from mammal to man.

The other night we were sliding our way to a meeting when a big female 'possum ambled across the

road. It is this ambulatory gait, and apparent stupidity, that makes one wonder how the animal survives the roaming cats and dogs that beset the East End.

## Undone

This it does, only quite often to be undone by a Detroit creation. A 'possum may live as long as three years in the wild, as we found from live trapping and tagging, and have young from February to August.

Although the 'possum is repulsive to most people, the fur is used for trimming coats, but not as extensively as in the past. The hide was transported to Europe to be dyed, and returned as skunk, to grace milady's shoulders. John James Audubon tells us that the flesh resembles that of a young pig and gives us this recipe:

"After cleaning its body, suspend it for a whole week in the frosty air, for it is not eaten in summer; then place it on a heap of hot wood embers; sprinkle it when cooked with gun-powder; and now tell me, good reader, does it not equal the famed Canvas-back Duck?" Tough people, those pioneers.

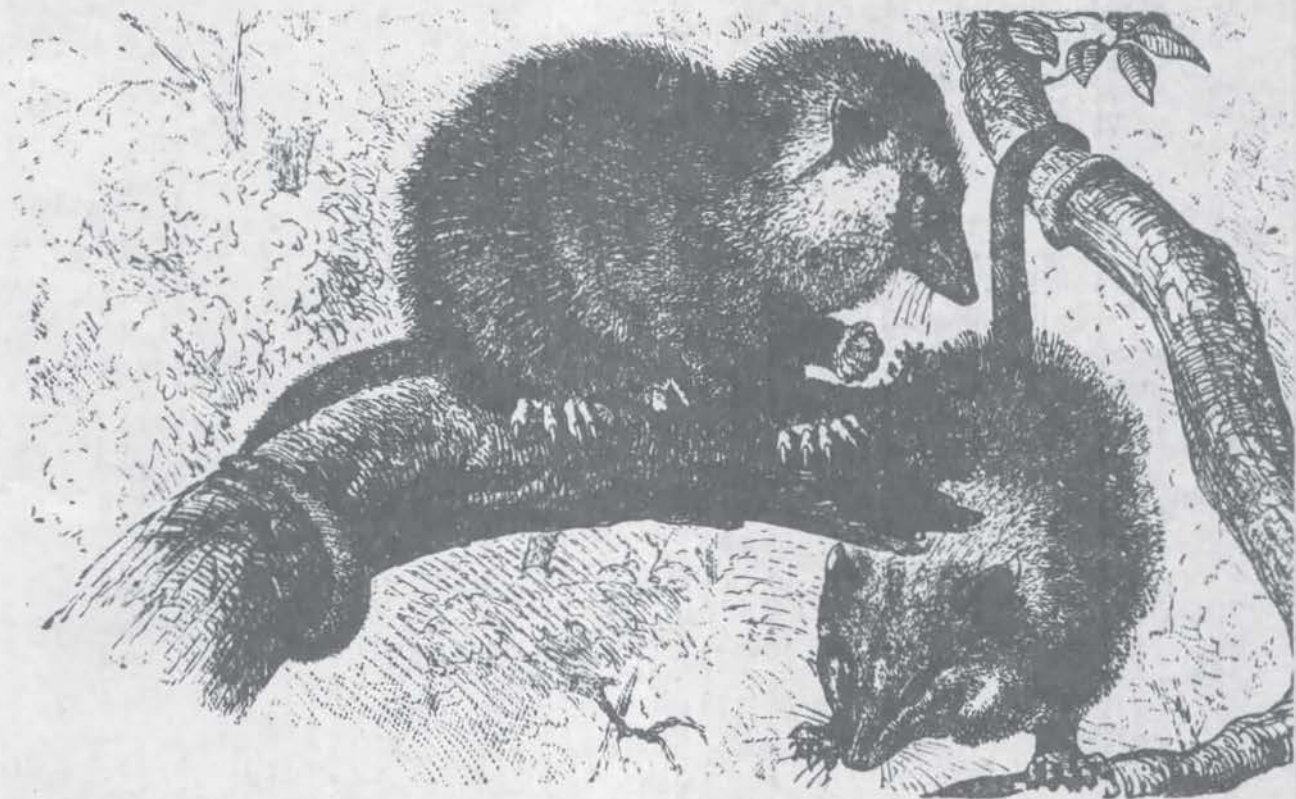
## Beetle Diet

Our early association with the 'possum was in southeastern Pennsylvania and southern New Jersey, associating it with the persimmon and sour gum trees. Somewhere along the line we acquired the saying, "'possum in the gum tree, coony in the hollow." We haven't found a 'simmon tree on the East End, but

there are numerous sour gums that help round out the 'possum's fare.

At a research station we found that 86 per cent of the animal's diet was animal material, with beetles being eaten most. We also found that the 'possum ate more millipedes than any other fur animal. If you have ever seen a millipede with almost, it seems, a million "feet," you know what a ticklish hors d'oeuvre they could be.

We hope that the opossum like our raccoons will always be around, a reminder of what was once a wild America and a more uncluttered way of life.



Opossum (*Didelphys marsupialis*).

# Notes From Morton Refuge

EAST HAMPTON STATE 4/16/72

By F. C. Schmid, Manager

In our comings and goings along the road to the Morton Wildlife Refuge we pass an old black oak. Some time ago, to satisfy energy demands, a branch had been carelessly removed to allow passage for power lines. Time and decay had created a cavity that faced southwest.

Sometimes in the late afternoon winter sunshine, we would see a screech owl of the red phase, slumbering we thought, on the lip of the cavity. We stopped to make sure; slowly the owl backed down like a character in a Punch and Judy show.

The other morning we saw a crumpled mass of red feathers at the hairpin turn over Mill Brook. Hoping against hope we stopped to investigate. It was a red phase screech owl, and quite likely our friend of the oak—a scant hundred yards away—the little owl's quavering tremolo would no longer be heard in the thickets by the brook.

## Lesser Niche

The screech owl fills a lesser niche among the avian predators of the night; a small replica of the great horned owl that still maintains resi-

dence in our dwindling wild acres. These owls are part of nature's flux of predator and prey, and the nocturnal counterparts of the hawks. Contrary to popular belief, the absence of prey controls the number of predators.

Jonathan Swift, in another vein said, "So naturalists observe a flea hath fleas that on him prey; and these have smaller still to bite'em; and so proceed ad infinitum." Owls could live to a great age if they were not plagued with loss of suitable habitat. Misguided individuals still shoot and pole-trap them.

An eagle owl, counterpart of our great horned owl, and found in Europe, lived 68 years in captivity. We know of at least 500 great horned owls that were trapped to their deaths on a game farm in Ohio.

## Pesticide Studies

The screech owl, like the American kestrel, is being used in pesticide studies to determine the long term effects of pesticides in birds of prey. Like the kestrel, they are relatively more adaptable to cage conditions, where numbers are important for statistical inference.

The screech owl will use a roomy box with sawdust in the bottom, about the same size of the box used for the kestrel; ten by ten by 16 inches, with a hole three inches by four inches, snuggled under the overhanging roof. One must be on the lookout for squatters like the gray squirrel, and that group renter, the starling, the worst usurper of homes of the hole-nesting species of birds.

## Something Droll

The screech owl lays its eggs from late March through April, and the downy young are usually on the wing before their head feathers are fully developed. Like all young owls at this age, there is something droll about their appearance—veritable gnomes of the night. The plumage colors may be rufous red or gray, independent of age, sex, or season. It seems we see more reds than grays, but this is also an unknown.

If you are out star-gazing on a clear East End night and you hear a quavering arpeggio, it is not a banshee, or the "fatal bellman of the night," just a desirable member of our birdlife out here.

EAST HAMPTON STAR  
APRIL 6, 1972



Fledgling Screech Owl

F. C. Schmid Photo

# Notes From Morton Refuge

By F. C. Schmid, Manager

One of our favorite trees, not native to North America, is the paulownia or princess-tree. It came to us by way of China and Japan. The tree was named for Anna Paulowna, a Russian princess, and daughter of Czar Paul I.

In old Japan the flowers and leaves—stylized—became a royal family crest or mon; the five to seven blossoms and buds with pendant leaves, symbolizing felicity and bliss. The botanical commentaries of ancient Japan featured the paulownia as the only resting place of the fabulous Phoenix.

In our early bird watching days when we "bird golfed" (trying to see over 100 different birds, not under, in one day) we would seek out the paulownia. It blows about the height of the spring migration, and if conditions were propitious we would see a ruby-throated hummingbird.

Little did the first oriental horticulturist ever think the occidentals would be peering into those lovely masses of violet colored, sweet scented blossoms for a bird!

## Sought By Arranger

The panicle of blossoms is followed by brown capsules, about one and one-half inches long, reminding us of high cleric's hat, and they are much sought by the dried flower arranger. The thousands of tiny winged seeds from one panicle are sufficient to populate several acres, but Mother Nature doesn't operate that way.

They must fall on a light loamy soil with sun and moisture to germinate successfully. This is why, we gather, the trees grace a mouldering south-facing landfill in Southampton Town. Several other waifs or adven-

tives, as the botanists say, are there; Japanese buckwheat, California privet and Norway maple. All helping to hide the man-made ugliness of the spot.

## Descendants

Here and there we see the paulownia in Sag Harbor dooryards; in front of Mr. Hren's office in Amagansett; and occasionally as a hedge-row tree. These trees, judging from their size, are probably descendants of one brought from old Cathay by the whalers, or so we like to think.

The paulownia is a member of a great family of plants called the Scrophularia, because they were reputed to be a cure for scrofula. Your familiar garden snapdragon, foxglove, and penstemon, are members of this family. Foxglove—in the pharmacopoeias, digitalis—is probably the most important of the 2,500 or so plants of this family,

some of which are narcotic-poisonous.

In the springy places of the East End we have turtlehead, and on the salt marshes, untouched by man's intrusions, the lovely shell pink flowers of Gerardia; in the upland woods, wood betony or lousewort (wort is an old name for herb).

## Cow Wheat

Closely related to wood betony, but not as handsome, is cow wheat. John E. Cantlon of Michigan State University, did a beautiful piece of research showing what happens to a natural population when man's technology via the spray gun interferes. The insects and their predators, that kept the cow wheat in bounds were destroyed or reduced, and the cow wheat, parasitic on pines, increased to weedy populations.

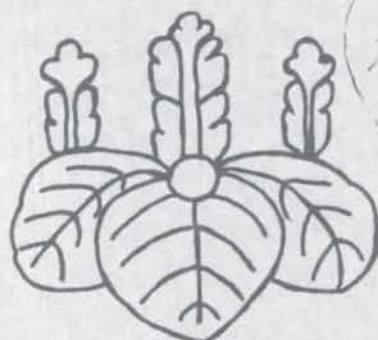
It is a fine example of an ecosystem that was little known, and a warning to us all to hold the line, and maintain the diversity inherent in the natural world. Strangely enough, the scrophularia are not known to be of great value to wildlife, but in view of our total ignorance, to quote Canadian entomologist Brian Hocking, "It is inherently unwise to destroy that which we cannot recreate."



FLOWER



BUDS



STYLIZED  
MON OR CREST  
OF  
PAULOWNIA



LEAF  
(CA 1/2)



CAPSULES

F.C. SCHMID

# Notes From Morton Refuge

By F. C. Schmid, Manager

We were swamped in May and well into June with school groups, which is the way we like it. Teachers, being human have an urge to get out of stuffy classrooms and look around. 'Tis only the human animal's urge. We knew a man who spent long winters in the sub-arctic and he avowed that the most wonderful thing was the longer days with the burgeoning of the alpine plants.

From these classes we have everlasting memories in the form of a batch of letters thanking us for our efforts in relating the young people to the natural world and what it means to them:

"Even though the marsh was soggy; we learned what poison ivy looked like; I never realized that people would want to destroy land as beautiful as marshland; I like the bird that peeked through the hole [flicker]; the best part was the mud [marsh]; our thanks to Morton Salt [we don't get that one!]; I like the swamp when I got my sandals all ugly; I like the grass that smelled the sweet grass." These are just a few excerpts from these earnest thank-you notes. As one teacher said

we sometimes underestimate our kids—we believe that.

One young teacher, to our amazement—for she was a Long Islander—had never walked a salt marsh, and her honest pleasure was good to behold. In sharp contrast was the man who met us on the trail when we were in mufti, and asked if this was all there was to the Refuge; another wanted to know where the museum was, to which we replied, "We have no cases, but it is all around you."

One of our pleasures is to find teachers, non-science-oriented, who bring a school group because he or she feels they should have this experience outside the classroom, and fortunately, there are many.

It is only through such thoughtfulness on the part of the teacher that perception can be developed, and an appreciation of the interrelationships of the plants and animals viewed. Then, it is possible to develop a conservation ethic. Unfortunately, this what the majority of Americans lack.

Aldo Leopold in speaking of

American culture said it well with: "Recreational development is a job not of building roads into lovely country, but of building receptivity into the still unlovely human mind."

# Notes From Morton Refuge

By F. C. Schmid, Manager

If we were using an Oriental time scale we would be inclined to call 1972 the Year of the Cuckoo. Cuckoos are never obvious and unless one is familiar with their habits and calls they are apt to be overlooked. The numbers of these birds are possibly due to those unwelcome defoliators, the gypsy moth caterpillars.

The New World cuckoo's name is not derived from its call, but from the fact that it is in that family of birds. The hesitant "gyulp, gyulp, gyulp" as it sounds to us, and "kow, kow, kow," is not like the "cuckoo" note of the British and European bird.

Our cuckoos are non-parasitic and the essence of propriety. They raise their young instead of dropping their eggs in the nests of other birds. They do not mock married men as Shakespeare put it, "Cuckoo, cuckoo; word of fear. Unpleasing to a married ear"—the bard's knowledge of natural history is always refreshing.

## Rain Crows

One wonders sometimes where one has picked up a common name. A black friend of ours, well steeped in the lore of the woods, knew the cuckoos as rain crows, because, he said, they seemed to call more before rain and on sultry days of imminent showers. With other birds quiet, the call reaches our ears with

more portent than most bird calls.

The cuckoo family is almost worldwide and range in size from about six and a half to 27½ inches. Our cuckoos have relatives to the south, known as anis, and the Western road-runner or paisano. The outer toe is reversible which is as handy for a bird, as our opposable thumb is to us. In the parasitic cuckoos the eggs vary considerably and may have mimetic inference, their eggs resembling those of their unwitting hosts.

## Field Characters

The plumages of our yellow-billed and black-billed cuckoos are soft brown with a delicate greenish sheen on the back with soft white breast and belly. The diagnostic field characters are not the bills but the presence of a rufous color in the inner wings and white tips to the tail feathers in the yellow-billed as contrasted with the uniform brown and gray tail tips in the black-billed.

Even these marks are better seen as the bird flips from cover to cover.

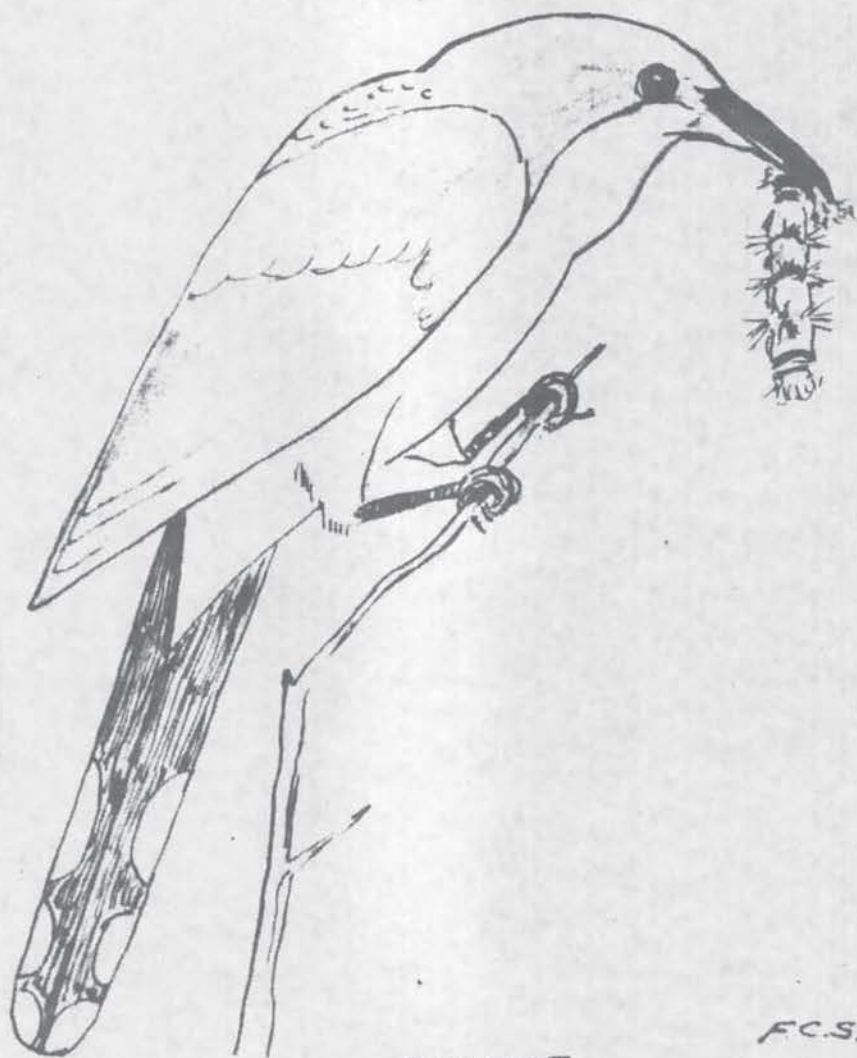
Once they settle in a tree they are difficult to spot. After landing they have a curious deliberate way of peering about with the rest of the body immobile, or sometimes raising and lowering the tail very slowly.

This peering about reminds us of the somewhat corresponding habit in the crested flycatcher and vireos, and is apparently their way of zeroing in on a juicy morsel among the leaves. Some of these morsels, being quite hairy, line the inside of the cuckoo's stomach so that it looks

like felt. They shed the stomach lining, meanwhile growing a new one!

One observer watched a yellow-billed cuckoo eat 41 gypsy moth caterpillars in 15 minutes. Yuk! So before you request a spray job think what it might do to other animals.

The gypsy moth caterpillars are no joke, but as a former colleague of ours said, "... a pest is purely a biological judgment on the part of man incriminating himself for creating or imagining the biological problem."



CATERPILLAR GULPER  
*Coccyzus americanus*

F.C.S.

Let. ...  
Aug. 20, 1912

## Notes From Morton Refuge

By F. C. Schmid, Manager

The other week we received from a friend a book we had suspected he had in the making, "Swamps, River Bottoms and Canebrakes."

Brooke Meanley, the author, is one of those rare persons in these days of specialism who relates to the old school of naturalists. Tidewater is his kind of country, where he pursued, when time was available, the life histories of such abstruse species as the king rail and Swainson warbler. Beneath the factual account of

plant, mammal, or bird, one feels his deep regard for the natural world little disturbed by the heavy hand of man.

Swamp, river bottom, and canebrake are terms that lead us from the Northeast to the South. He tells us what these physiographic provinces are in words and good photographic illustrations. Many of these places are close to the Florida-bound winter residents who know them only as monotonous places to pass in their frenetic and febrile search for a warmer climate.

In the introduction Brooke states, "To many persons a southern swamp is a forbidding place where poisonous snakes hang from vines, quicksand and alligators are encountered, and one may easily get lost. Much of this is fantasy. Poisonous snakes of the South generally are not tree climbers, and most of them are sluggish in their movements compared with non-poisonous snakes, some of which do climb."

"One year I spent 15 days in the Great Dismal Swamp in May and June and saw only six snakes, all

non-poisonous. I have never seen quicksand in a swamp, although it may exist in some (however, I have encountered peat bogs in the Dismal Swamp and Okefenokee that seemed bottomless), and today most alligators live on wildlife refuges. . . . By and large, a Southern swamp is one of the safest places in the world!"

Brooke goes on to tell about an interesting confrontation with moonshiners when, armed with collecting gun and binoculars, he stumbled on an operation. He asked if they had seen any turkeys and beat an hasty retreat. In the old days said Brooke the swamps must have been a moonshiners' paradise!

Many of the areas Brooke Meanley describes are and have been subject to exploitation, one of the saddest was the cutting of virgin timber in an Arkansas bottomland, presumably under Federal protection. One of the greatest losses to a virtually extinct species—the ivory-billed woodpecker—was the famous privately owned Singer tract in Louisiana of 80,000 acres. In ten years it was leveled, not by hurricanes, but by man.

We remember, in New Jersey, wooded swamps called "cripples" where we searched for rare birds and plants; "sponges" where one could hear the liquid notes of the hooded warbler. One of the best in Cape May County became bounded by a subdivision and sliced by a "parkway," causing a friend of ours to retreat from his century old house on the edge of a great salt meadow.

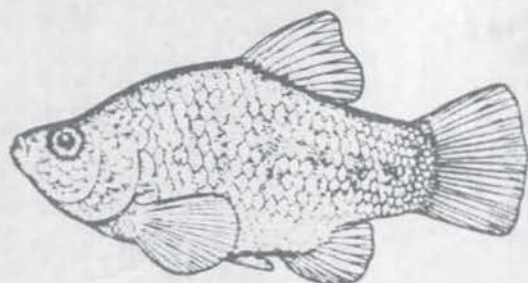
Here on the East End we have men and women of good will who try to stem the tide of speculative ugliness resulting from indiscriminate growth. Their efforts are by and large misunderstood. They will always be misunderstood and disregarded by the entrepreneurs of growth.



"WHO COOKS FOR YOU?" Who Cooks For You-All?" A barred owl, a nocturnal predator of the bottomlands.  
F. C. Schmid

## Notes From Morton Refuge

By F. C. Schmid, Manager



Pupfish, Life-Size

The other day we received a status report on the pupfish. It was not intended to be facetious, but it said in the covering memo, "the pupfish situation is still fluid!"

For the uninitiated, the pupfish live (the report said "resides") in desert pools. The pupfish that live in Devil's Hole, Nevada has the scientific name of *Cyprinodon diabolis*. These fish are on the "Rare and Endangered Species List" of animals which are protected by Public Law 89-669 of the 89th Congress of the United States, 10 Oct., 1966.

The Devils Hole Spring is about 40 feet long and about ten feet wide, the report says; depth is unknown, and is a part of an extensive underground water system that is neither charted nor well understood. The spring hole contains a shelf that provides sources of food and a spawning area.

### Water Level Lowered

Extensive pumping to provide irrigation water for private croplands began in 1969 and continues through the present time. The water level

in Desert Hole Spring has been lowered about 2.3 feet and exposed all but about five to seven per cent of the feeding and spawning area. When it is high and dry all is lost. The pupfishes may survive until the spring of 1973, and if there is no reproduction the end is near.

The government has negotiated and then taken legal action against the enterprise that is pumping and drying up the Hole. In March of 1972 the Regional Offices of the National Park Service and the Bureau of Sport Fisheries and Wildlife asked that immediate steps be taken to curtail pumping as the declining water level was reaching a critical low.

### Decision Expected

Summarily the Department of Justice and Cappaert Enterprises met at a pre-injunction hearing on July 3 and 5, 1972 in the Las Vegas District Court. The judge terminated the hearing on July 5 and directed both parties to prepare briefs and subsequent rebuttals for his review

and ultimate decision. A decision is expected by Oct. 15.

Field programs are being carried on to try to perpetuate the fishes, but results are not too encouraging. In view of the fact that so little is known about the actual requirements of these fish one would think there would be a moratorium until this could be established.

In this little known facet of the world we live in lies a lesson:

Recently we learned that the hydrologic study for the East End and Shelter Island has been dropped. We have also learned from the Land Use Committee of the East End Council of Organizations of a zoning decision that could effect all of us in the years to come.

Can we learn a lesson from the pupfishes' plight?

# Notes From Morton Refuge

By F. C. Schmid, Manager

## Bring Your Camera—Any Time

While working on the Refuge this summer I noticed only a small number of visitors actively taking photographs. Anyone who has been to Morton at least once would probably agree that our refuge is one of the most attractive spots on the Island. And, since most of you do have cameras handy, why not bring one along on your next visit?

Every season produces its own beautiful settings. Bring a camera in the spring and capture the first flowers of the year. Then bring a camera back through the summer and fall for flower encores. In July try to capture the beautiful orange of the butterfly weed.

Or in August try the large pink swamp rose-mallow that can be found blooming on the nature trail. If you look carefully in early summer you might even find the square-stemmed monkey-flower (with a name like that it just has to be worth photographing).

Even the small inconspicuous flowers display their own delicate beauty, if one will only take the time to peer more closely. The diminutive blossoms of the seaside gerardia, the wineberry, and the sea-lavender all ask for your camera's attention.

## Rhus Radicans

In August and September Rhus radicans presents its latent fall colors for all to see and photograph (but don't touch, just shoot—it is commonly known as poison ivy).

Plants represent only one group of camera subjects available at Morton; don't forget our animals. If patience is one of your virtues, you might wait for a cottontail to present itself toward evening. It wouldn't be too difficult to snap a shot of a chickadee taking a sunflower seed from the hand of a companion.

Oftentimes on our brackish pond (between the bluffs) snowy egrets can be approached to within good composition distance. If you are lucky you might even come upon a box turtle laying eggs.

If scenic photographs are preferred you will find the refuge accommodat-

ing. On a land area of less than 200 acres, the refuge has many different habitats. A fresh pond, a brackish pond, woodlands, salt marsh, beaches, bluffs, and salt water bays all combine with the varied moods of weather, light, and seasons to give the photographer countless opportunities.

## Winter

Come to the refuge in winter when the ice cakes pile up on the beach. Or for unusual effects come during stormy weather. I even took pictures during Hurricane Agnes, but you needn't go to those extremes to capture an uncommon scene.

I have touched on only a few of the countless subjects that Morton refuge offers to the visitor with a camera. I'm sure you will find many more to choose from on your next visit.

In my years as an amateur photographer I have formulated a few rules which I usually try to follow to insure myself better-than-average pictures. Perhaps they may be of some use.

The basic thought to keep in mind is that the eye and the camera do not always "photograph" exact duplicates of the same scene. When the eye comes upon something visually pleasing, the mind (the eye's photographer) in turn often blots out extraneous clutter. The camera, of course, does not blot out anything and faithfully records all the clutter.

## Double Standard

The photographer's failure to

realize that this double standard exists can often result in disappointing clutter-filled photographs. The photographer's job then, is to consciously eliminate this clutter from the field of view before the shutter is released.

So, (1) Take time out to compose your picture. Get only what you want and position it where you want.

(2) Keep your picture simple, if possible. Analyze some good photographs. Simplicity is often their hallmark.

(3) For many pictures you should get as close to your subject as possible. By filling the viewer with your subject you automatically eliminate clutter.

Bring your camera—any time (and enjoy yourself).

Lee O. Webb

Biological Technician

Mr. Webb, a native of North Adams, Mass., was hired by the bureau as a biological technician. He received his bachelor's degree in the field of wildlife management from the University of Massachusetts, and has gone on to get his master's at the University of West Virginia. While there he will be doing research on woodcock. He is an accomplished photographer, but limited himself to photographing the local flora in color.

F. C. Schmid, Mgr.

EAST HAMPTON STAR

NOVEMBER 23, 1972

SEVEN



Woodcock On Four Eggs

Frederick Schmid

# Notes From Morton Refuge

By F. C. Schmid, Manager



Barn Swallow

Joyce Chapman

Sometimes we wonder if we have accomplished conveying to others the understanding of the natural world and what it means to them both in a particular and abstract way.

The hour is late, the telephone rings, and a voice says, "Do you remember J—? I was coming home through the pine barrens [New Jersey] the other night from fishing. Do you remember when we saw the snowy owl, had a flat tire, and my brother had left the jack in the garage, and we had to lever the car with poles?"

That was 35 years ago, and we had made the rounds of some of our favored haunts, assisting in the second winter bird census. There had been, according to our notebook, 65 observers; 734 hours spent; 150 species seen out of 463,000 individuals.

There had been tallied, nine sharp-shinned hawks; ten Cooper's hawks;

66 red-tailed hawks; 16 red-shouldered hawks; 32 rough-legged hawks; 24 bald eagles; two golden eagles; 71 marsh hawks and 114 American kestrels. We alone had seen 103 of the 703 turkey vultures counted.

An impressive list of owls had been made, four barn owls; ten screech owls; 30 horned owls; eight snowy owls; 11 long-eared owls; eight short-eared owls and three saw-whet owls.

## No Threat

That day we had visited some unspoiled marsh and barrier beach, and had seen the sun drop below the coast white cedars in what was then one of the loveliest areas of the barrens. There was no threat of an international jetport nor a safari park where one can drive among the lions!

J— said he had been speaking to a group of young people, and had remembered that it was just such an occasion that brought us together.

Of this age group there was one who taught himself calculus and heads an electronic division. When they get together, their holidays are spent looking for some animals they feel should be here, or there for a plant in some hidden bog.

Of the one, the family is made up of young women, the other, young men; one moved to suburbia to be within walking distance of the hills he grew to love, and the other removed self and family to the Pennsylvania Dutch Country. We bet they know it better, and the love of it will be passed on to the families.

## None of Us Died

We remember with nostalgia the time we hiked to the Nockamixon Cliffs to see duck hawks on their territory, and furnished food to hordes of mosquitoes—none of us died of all those dire things the Suffolk County Mosquito Control Commission threaten us with if we don't support them. The duck hawks are gone now, and a lot of the wildness of that spot.

The Bureau recently published "Wildlife Research Report 1, An Analysis of the Population Dynamics

EAST HAMPTON STAR  
DECEMBER 21, 1972

of Selected Avian Species," with special reference to changes during the modern pesticide era. Charles J. Henny is the author, illustrations by Jance Chapman.

In conclusion Dr. Henny states, "The evidence that chlorinated hydrocarbon pesticides are responsible for the decline of many species of birds is reinforced by the results of this study. The mechanism is shown to be interference with the reproductive capacity. This result is consistent with other recent findings. In all species in which comparison could be made, the recent reproduction performance was cor-

related to changes (or lack of changes) in eggshell thickness."

**Food Chain**

"Species affected are those predators near the top of the food chain; a result which was predicted on theoretical grounds. It is important to emphasize that no evidence was found of increased postfledging mortality rates, which implies that the observed declines in population numbers have resulted from sublethal dosages in breeding birds.

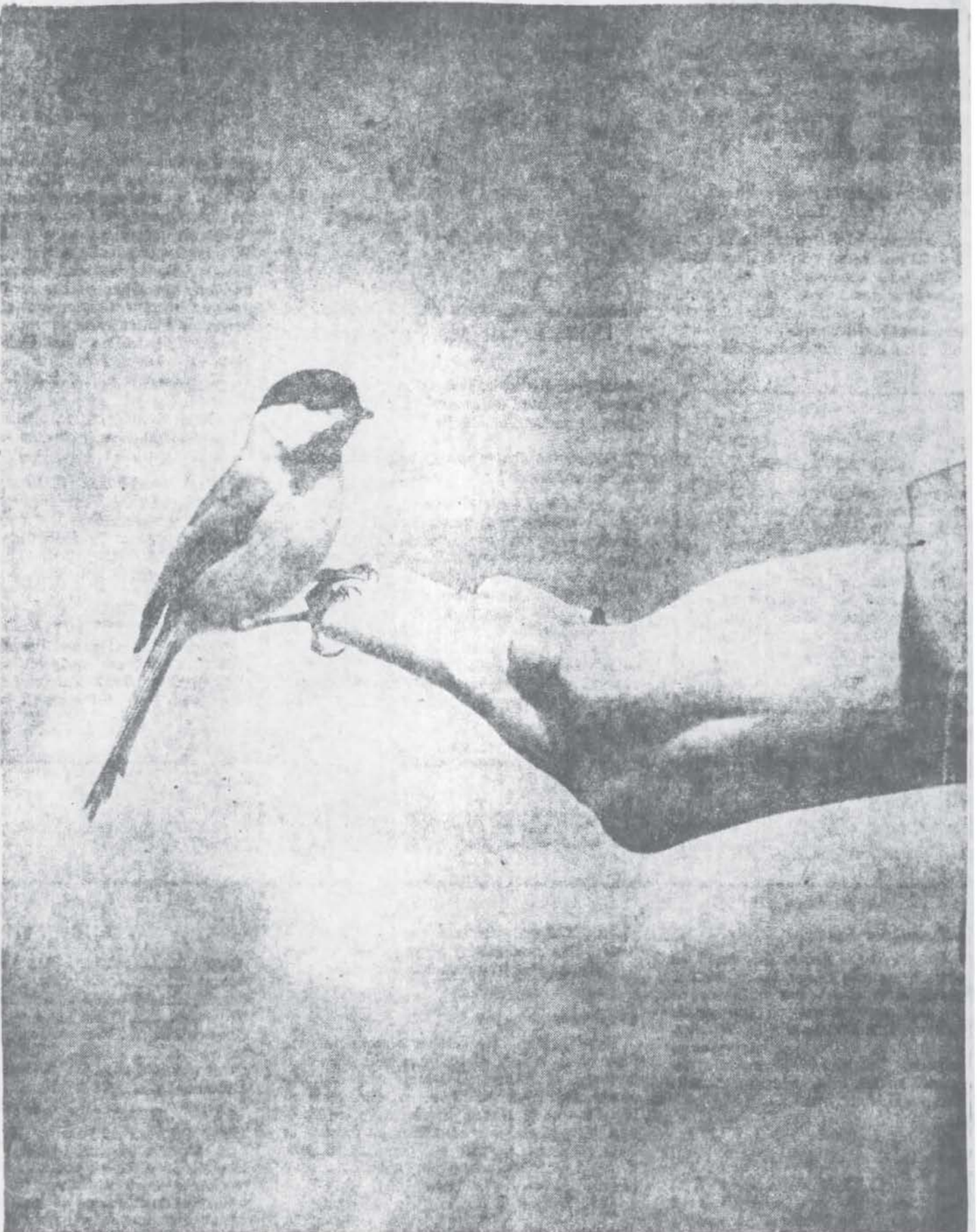
"Studies in the future should be designated to monitor the reproductive rates and the eggshell weights. LD50 [median lethal dosage is a

statistical estimate of the dosage that would be lethal to 50 per cent of a very large population of the test species] toxicology studies and

the counting of dead birds  
campuses cannot be used effectively to determine the status of populations of birds in the wild."

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P. 6



In an LI wildlife refuge: A chickadee poised for a handout. Page 4A.

# Where the Goal Is to Preserve And Protect

At the Morton National Wildlife Refuge, they work hard to make the living easy for its natural inhabitants.



*A resting place for waterfowl and a home for other wildlife.*

By Don Smith

From deep in the wooded area came the harsh, scratchy screech of a cock pheasant. Overhead, the strident cry of a scolding bluejay shattered the morning quiet, interspersed with the rollicking cheerful whistles of Carolina red wrens from the meadow area a few hundred yards from the small office building.

In the office, standing next to a desk, was Frederick C. Schmid, the manager for the U.S. Department of the Interior of the 187-acre Morton National Wildlife Refuge, in Noyack. He held a bulky cardboard box and remarked: "It is amazing how much stuff floods into American homes and offices each day that just has to be thrown out and shouldn't have been mailed in the first place." The box contained a display booklet and samples from a carpet manufacturer. Schmid shook his head and said: "I wonder if they think we are going to carpet the refuge."

After donning rubber boots and gloves ("The trail through the marsh area is wet and the green-briars everywhere"), Schmid locked the office and set off along the trail. He stopped first at a green stanchion marked "1" overlooking the meadow.

"When we have a school group visiting us," said Schmid, 62, a naturalist all his life, "I make this the first stop to explain how that small meadow is a self-contained ecological unit." The stop at the meadow usually follows a 25-minute film about the salt marsh and its role in preserving wildlife shown in the barn that is next to the refuge's entrance.

The refuge was donated to the U.S. government in 1954 by Miss Elizabeth Alexandra Morton, who decreed that it never be used for any other

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TUESDAY  
APRIL 11, 1972

recreational purposes than bird-watching, walking or picnicking on the beach. The refuge is on the north side of Noyack Road, five miles west of Sag Harbor and consists of a 77-acre upland area and a narrow 110-acre peninsula that separates Noyack and Little Peconic Bays. About halfway out on the peninsula there is a three-acre brackish pond, and the point of the peninsula is known as Jessup's Neck.

Looking over the meadow, Schmid explains that it is a field coming back from what had been farmed land. Insects and grass and weed-seeds feed the varieties of songbirds and the mice and shrews that live in and around the meadow. At the top of the self-contained unit are the sparrow hawks, the predators that have nested high in a tree in the meadow and in turn feed on the mice and shrews and, occasionally, on small songbirds.

From the meadow, the trail winds along paths lined with wineberry, bayberry and Japanese honeysuckle and into the marsh area where skunk cabbages are poking up from the dark, soggy soil. Schmid pauses to point out a sign of last year's visitors, a soda can. "It's a constant battle," he says with a shrug. "Erosion caused by wind and water in some areas, man's own erosion of the place, the littering of the trails with wrappers and cans because when everything is in full leaf people figure no one will see what they throw away."

Last summer, Schmid had two men working with him to act as guides, to control parking in the small area that can accommodate only 60 cars, and to pick up the day's refuse. This summer, he is

hopeful that at least one person will be hired, but he has not yet been informed whether he will get any help at all.

"Our main purpose here," he said, "is preserving and protecting the wildlife and plantlife and, with education, to try and make visitors understand that what they destroy of nature cannot be replaced." Last year, Schmid made tags that were affixed to each tree and shrub to inform visitors of the species. "They didn't last long," he said. "Something about a tag seems to force someone to pull and tear them off."

Because of its location and the pleasant white beach that lines both sides of the peninsula, the greatest threat, Schmid says, are boaters who come ashore and often build fires. "Fire could utterly ruin the refuge," he said. "And at least 10 times every spring and fall, when the weather is a bit chilly, someone will decide to build a fire using the dead wood from the trails. You spend your time constantly patrolling."

The beach, too, Schmid said, has "unhappily become one of our big attractions." He added, "Many people just come here and head for the beach, ignoring the walk and the wildlife because it's free to park here."

Maneuvering a jeep along the sand on a recent inspection trip along the beach, Schmid braked and grabbed for his binoculars. "Up there, in that tree," he said.

Atop the tree, next to an unused osprey-nesting site, sat one of the large fishhawks, eating something plucked earlier from Noyack Bay. "Maybe this year we'll have better luck," Schmid said. "We have a few nests set out, but so far they

[ospreys] haven't nested here, but at least they are back."

The refuge is a haven for waterfowl of all sorts and a resting area for them when they are in migration. A recent visit turned up a pair of black ducks, Canada geese and mallards, a horned lark, the osprey, sparrow hawks, mourning doves and chickadees. The refuge is home for a herd of about 10 deer, rabbits, squirrels, red fox, racoons, field mice, shrews, turtles, weasels and opossums. In the deep woods atop the bluffs along the peninsula, Schmid has erected a nest for the Great Horned Owl spotted in the refuge. So far, however, the nest has not been used.

"This early in the spring," Schmid explained, "there aren't that many species of birds around yet." Since 1956, when the refuge was formally opened to the public, more than 200 species have been sighted. Schmid thinks that part of the refuge's attraction for visitors is the chance to record the spotting of more species of birds that may visit the area.

Last year, 13,593 visitors logged in at the refuge and 105 school groups took guided tours.

On a recent day in late afternoon the constant chattering of black-capped chickadees echoed along the trail back toward headquarters. Schmid reached into his pocket and passed a handful of sunflower seeds to an East Islip seventh-grader, telling her to hold them in her palm and remain still. Seconds later, chickadees began landing on the girl's fingers, plucking at the seeds and then darting off into the trees.

"To the chickadees," Schmid said, "we human beings are just mobile feeding stations." /II

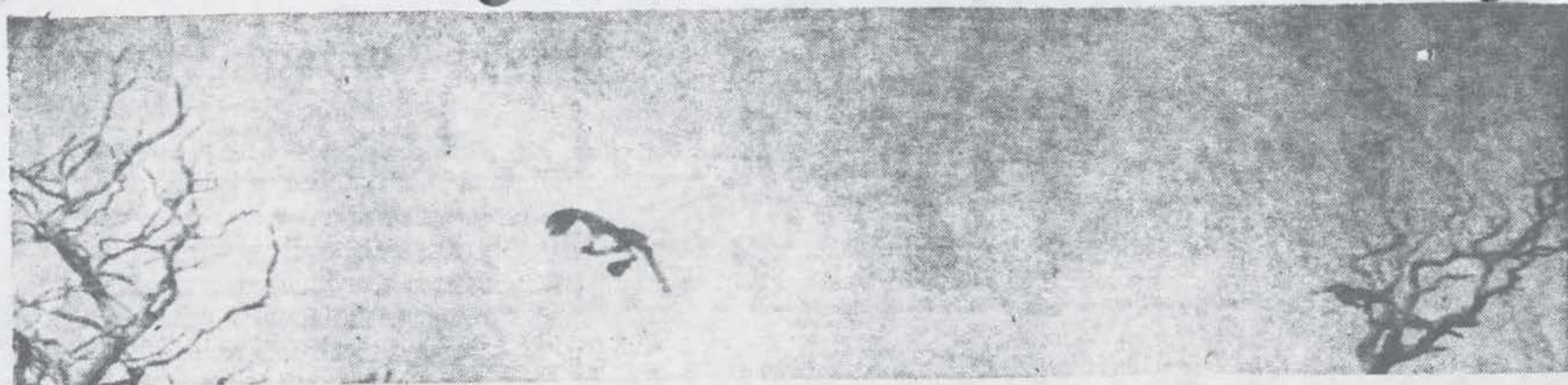
NEWSDAY  
TUESDAY, APRIL 11, 1972



*Frederick C. Schmid, the refuge's manager, indicates the holes made by a small woodpecker, the yellow-bellied sapsucker, drilling for food.*

NEWSDAY

TUESDAY, APRIL 11, 197



*An osprey that returned to the refuge and takes flight after feeding.*



*Miss Morton allowed three things: Walking, picnicking and bird-watching.*

*Manager Schmid walks a trail,  
using tree trunks as stepping  
stones to cross a stream.*



AUGUST 10, 1972

# life on the wild side

Tired of seeing the works of your fellow man everywhere you turn? Well, you can still see some of the Hamptons as they may have been before the heavy hand of man began to muck around with his environment.

While the works of man, or their remnants, are just about everywhere you turn, there are a few areas in the Hamptons that have been set aside to remain wild...protected by men against man, as it were.

The areas are called refuges rather than parks. Rather than fun and games for the people who visit them, their primary purpose is "the protection and perpetuation of wildlife resources," according to the Fish and Wildlife Service, a division of the U. S. Department of the Interior.

## Southampton Waterfowl Association

The Quogue Wildlife Refuge, in Quogue on Old Main Road just off Route 27, consists of 200 acres of water, wetlands, and trails. The refuge is sponsored by the Southampton Waterfowl Association and managed by the New York State Conservation Department.

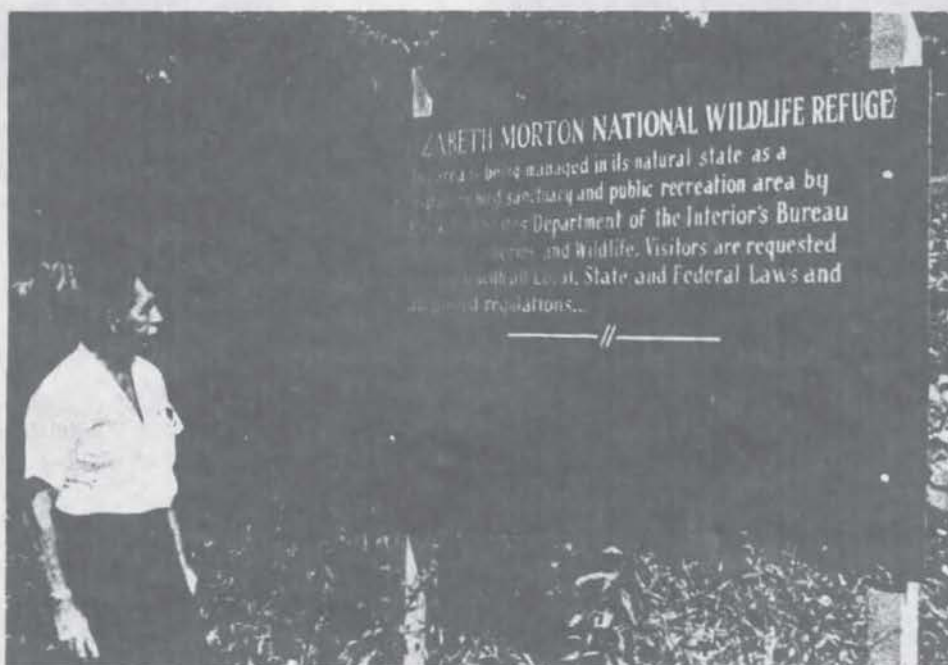
In the early 30s a group of responsible

duck hunters, feeling that the natural wildlife areas were rapidly being lost to building developments, purchased the headwaters and surrounding wetlands of Quantuck Creek, from the Quogue Ice Company whose business was being rendered obsolete by the refrigerator. They set the area aside as a refuge and began to return the land to its natural state.

At first young ducklings were penned to insure that they would reach maturity. Evidently ducklings are a treat for just about every carnivore in the wetlands and there was not much natural protective coverage because of the lands past commercial use. Plantings were brought in and gradually the area that once had yielded 3000 tons of ice a winter became what it is today, a fantastically beautiful natural area.

There are approximately eight miles of trails over the entire refuge. The nature walk that most people take is about two miles around the main pond and "only takes about an hour," according to Carl Helms, the refuge manager.

Helms, a genial man who has a great deal of enthusiasm for his work, has been running the refuge for the last



U.S. Field and Wildlife Service's Fred Schmid

AUGUST 10, 1972

eight years. His background, horticulture, comes in handy, because in a wild environment man can keep it wild most effectively by ensuring that the right plantings are present.

While the pens that were once used to give young ducklings a fighting chance on life are no longer needed — the area is now in better ecological balance — the pens themselves are put to good use by Mr. Helms. He uses them to house wounded wild animals, or tamed wild animals that are no longer wanted by their owners. The tamed animals have often been altered in some way so that they can no longer cope with the wild environment.

At present the pens contain fowl (from a golden eagle to a black bird that says "hello"), mammals (from foxes—"good pets if you don't mind the smell"—to chipmunks) and a big turtle sitting in a small pan of water in a big cage.

Mr. Helms, aided by Gail Tooker—a bright young biologist from the area—and Jane Booth, has started a Field Ecology Program for youngsters. There will be four week long programs (Mon thru Fri, 9 - 12 a.m., no more than 20 people each week) during August.

The Quogue Wildlife Refuge is a thoroughly enjoyable place to visit. It should be particularly interesting to children because of the penned animals and the concise well-maintained walk (much of it on a catwalk build above the wetlands). While Mr. Helms and his associates are very gracious, the refuge is not a park; no picnicking or camping is allowed.

#### Field and Wildlife Service \*

There are two public National Wildlife Refuges in the Hamptons run by the Field and Wildlife Service. While the primary purpose of the Service's refuges is protecting wildlife—as at the Quogue

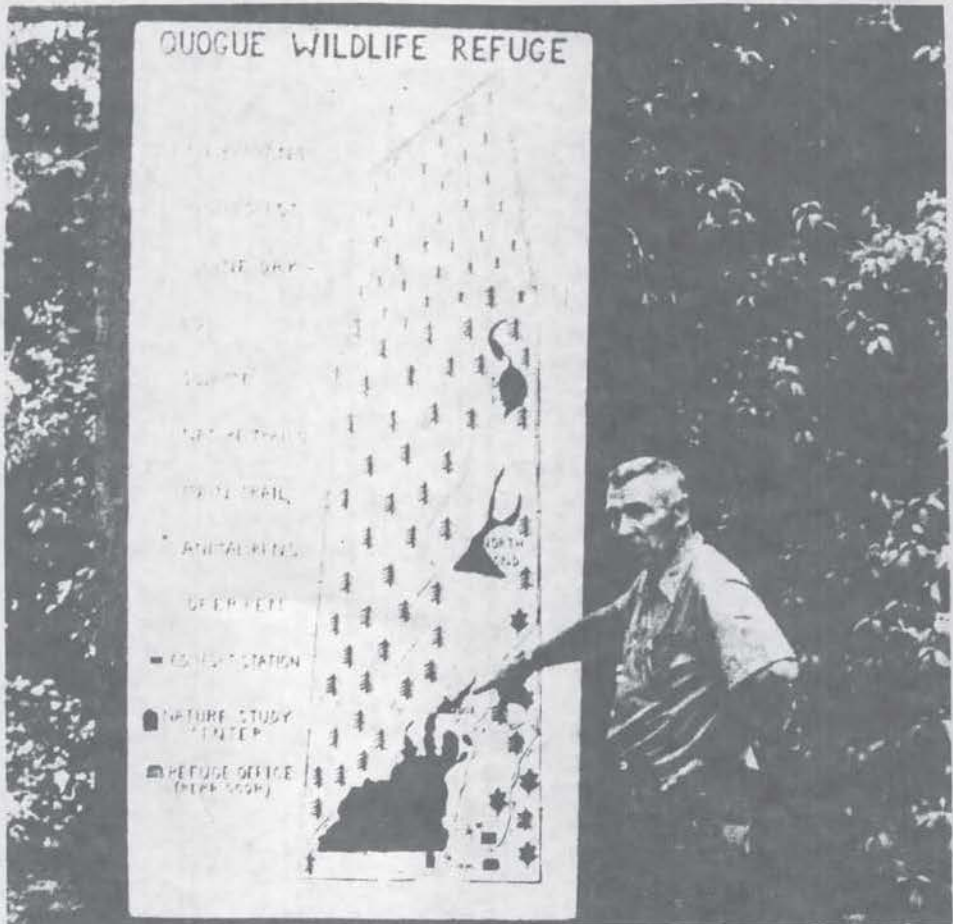
refuge—the National program promotes where possible, a more open use of the lands by visitors. In addition to the major activity of viewing wild life in their natural habitat, picnicking and "even sunbathing" are permitted.

Fred Schmid, who manages the two refuges in the area, is a professional with the Service. He has been in this area since 1967. While Service personnel rotate assignments rather than remaining at any one refuge permanently, Mr. Schmid says that "it takes about four complete annual cycles before a man can really feel that he knows all the aspects of an area."

While Mr. Schmid wants people to enjoy themselves when they visit the refuges (and is very generous with his time and enthusiasm), he is concerned about the lack of care that people show in disregarding signs (a whole Osprey colony was lost by some visitors who built a fire at the base of a sign that said "No Fires") and leaving litter. "We used to hand out special litter bags but we had to stop because people tossed the bags on the beach," he said.

The Elizabeth Alexandra Morton National Wildlife Refuge is on Nyack Road, near the junction of Deerfield road on Peconic Bay north of Southampton Village. The refuge consists of 187 acres, the northern two-thirds of which is a peninsula known as Jessups Neck after a family of early (1679) settlers.

The Morton Refuge is a beautiful combination of rocky beaches, wooded bluffs, brush, woodland, and open fields. There is also a small brackish pond that "school teachers like to use for their classes because it contains so many different ecological examples in such a short space," said Mr. Schmid. "Back in the 20s the area was probably burned to the ground, now it is going



Carl Helms of the New York State Conservation Department

-NR

through various stages of sequential growth. Pretty soon it will be back to the way nature intended it."

The area abounds in wild life, "over 200 species of waterfowl have been recorded here," said Mr. Schmid.

The second National Wildlife Refuge open to the public in the area is in Amagansett. The refuge, whose designation is a sign—no one is stationed there permanently—is located four miles east of East Hampton off Route 27 and Bluff Road. By Service stands its 36 acres of relatively small.

But its 1,342 feet of barrier beach and associated dune complex are what is important. According to the service, "its abundant bird and mammal life and interesting vegetation has great value for environmental study of beach ecology."

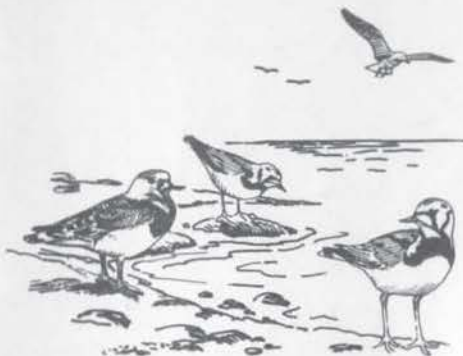
The wildlife refuges in the Hamptons are beautiful. They are there for you and your children to enjoy. Take advantage of the opportunity to get back to nature. Don't take advantage of the refuges.

Neil Ransick

## NOTES

Date \_\_\_\_\_ Time \_\_\_\_\_  
 Weather \_\_\_\_\_ Wind \_\_\_\_\_  
 Observers \_\_\_\_\_  
 Total Species Observed \_\_\_\_\_

## BIRDS of



As the Nation's principal conservation agency, the Department of the Interior has basic responsibilities for water, fish, mineral, land, park, and recreational resources. Indian and Territorial affairs are other major concerns of America's "Department of Natural Resources."

The Department works to assure the wisest choice in managing all our resources so each will make its full contribution to a better United States—now and in the future.



UNITED STATES DEPARTMENT OF THE INTERIOR

BUREAU OF SPORT FISHERIES AND WILDLIFE



RL 193-R3  
 July 1972

## MORTON

### National Wildlife Refuge

This folder lists 221 species of birds that have been identified on the Morton Refuge by refuge personnel and qualified birders.

Seasonal occurrences and relative abundance are coded in this list as follows:

a - abundant      s - March-May  
 c - common      S - June-August  
 u - uncommon      F - Sept-Nov  
 r - rare      W - Dec-Feb

\*species nesting on refuge

UNITED STATES DEPARTMENT OF THE INTERIOR

|                              | s | S | F | W |
|------------------------------|---|---|---|---|
| Common Loon.....             | u |   | u | u |
| Red-throated Loon.....       | u |   | u | u |
| Horned Grebe.....            | c |   | c | c |
| Pied-billed Grebe.....       | u |   | u | u |
| Great Cormorant.....         | r |   | r | u |
| Double-crested Cormorant.... | c | u | c | r |
| Great Blue Heron.....        | u | u | u | u |
| Green Heron.....             | c | c | c | r |
| Little Blue Heron.....       | u | u |   |   |
| Common Egret.....            | u | u | u | r |
| Snowy Egret.....             | u | u | u | r |
| Black-crowned Night Heron... | u | u | u | u |
| American Bittern.....        | u | u | u | u |
| Mute Swan.....               | u | u | u | u |
| Canada Goose*.....           | u | u | u | u |
| Brant.....                   |   |   | u | u |
| Snow Goose.....              | u |   | u | u |
| Mallard*.....                | u | u | u | u |
| Black Duck*.....             | c | u | c | c |
| Green-winged Teal.....       | u |   | u |   |
| Blue-winged Teal.....        | u |   | u |   |
| American Widgeon.....        | u |   | u | u |
| Wood Duck.....               | u |   | u | u |
| Canvasback.....              | u |   | u | u |
| Greater Scaup.....           | u |   | u | u |
| Lesser Scaup.....            | u |   | u | u |
| Common Goldeneye.....        | u |   | u | c |
| Bufflehead.....              | u |   | u | u |
| Oldsquaw.....                | c |   | c | c |
| White-winged Scoter.....     | u |   | u | u |
| Surf Scoter.....             | u |   | u | u |
| Common Scoter.....           | u |   | u | u |
| Ruddy Duck.....              | u |   | u | u |
| Hooded Merganser.....        | r |   | u | u |
| Red-breasted Merganser.....  | c | u | c | c |
| Sharp-shinned Hawk.....      | r |   | r | r |
| Cooper's Hawk.....           | r | r | r | r |
| Red-tailed Hawk.....         | r | r | r | r |
| Broad-winged Hawk.....       | u | u | u |   |
| Rough-legged Hawk.....       |   |   | r | r |
| Marsh Hawk.....              | u | u | u | u |
| Osprey*.....                 | u | u | u | u |
| Pigeon Hawk.....             | u | u | u | u |
| Sparrow Hawk.....            | u | u | u | u |
| Ruffed Grouse.....           | u | u | u | u |
| Bobwhite*.....               | c | c | c | c |

|                              | s | S | F | W |
|------------------------------|---|---|---|---|
| Ring-necked Pheasant*.....   | u | u | u | u |
| Clapper Rail.....            | u | u | u | u |
| Semipalmated Plover.....     | u | u | u | u |
| Piping Plover*.....          | u | u | u |   |
| Wilson's Plover.....         |   | r |   |   |
| Killdeer.....                | u | u | u | u |
| American Golden Plover.....  | r |   | r |   |
| Black-bellied Plover.....    | u | u | u | u |
| Ruddy Turnstone.....         | c | c | c | r |
| American Woodcock*.....      | c | u | u | r |
| Common Snipe.....            | u |   |   | u |
| Whimbrel.....                |   | r | r |   |
| Spotted Sandpiper*.....      | u | u | u |   |
| Solitary Sandpiper.....      | u |   | u |   |
| Willet.....                  |   | u | u |   |
| Greater Yellowlegs.....      | c | u | u |   |
| Lesser Yellowlegs.....       | u | u | u |   |
| Knot.....                    | u | u | u |   |
| Purple Sandpiper.....        |   |   |   | r |
| Pectoral Sandpiper.....      | u |   | u |   |
| White-rumped Sandpiper.....  | u |   | u |   |
| Dunlin.....                  |   |   |   | u |
| Short-billed Dowitcher.....  | u | u | u |   |
| Semipalmated Sandpiper.....  | u | u | u |   |
| Western Sandpiper.....       |   |   | u |   |
| Sanderling.....              | c | c | c | u |
| Glaucous Gull.....           |   |   | r | r |
| Great Black-backed Gull..... | c | c | c | c |
| Herring Gull.....            | a | a | a | a |
| Ring-billed Gull.....        | u | u | u | u |
| Bonaparte's Gull.....        | u | u | u | u |
| Forster's Tern.....          | u | u | u |   |
| Common Tern*.....            | c | c | c |   |
| Roseate Tern.....            | u | u | u |   |
| Least Tern*.....             | u | u | u |   |
| Black Tern.....              | u | u |   |   |
| Mourning Dove*.....          | c | c | c | u |
| Yellow-billed Cuckoo*.....   | u | u | u |   |
| Black-billed Cuckoo*.....    | u | u | u |   |
| Screech Owl.....             | u | u | u | u |
| Great Horned Owl*.....       | u | u | u | u |
| Snowy Owl.....               |   |   |   | r |
| Whip-poor-will.....          | u | u | u |   |
| Chimney Swift.....           | u | u | u |   |
| Ruby-throated Hummingbird*.. | u | u | u |   |
| Belted Kingfisher*.....      | u | u | u | u |

|                               | S | S | F | W |
|-------------------------------|---|---|---|---|
| Yellow-shafted Flicker*.....  | u | u | u | u |
| Yellow-bellied Sapsucker....  | u | u | u | u |
| Hairy Woodpecker.....         | u | u | u | u |
| Downy Woodpecker*.....        | u | u | u | u |
| Eastern Kingbird*.....        | u | u | u | u |
| Great Crested Flycatcher....  | u | u | r | u |
| Eastern Phoebe.....           | u | u | r | u |
| Least Flycatcher.....         | u | u | u | u |
| Eastern Wood Pewee.....       | u | u | u | u |
| Horned Lark*.....             | u | u | u | u |
| Tree Swallow.....             | u | u | u | u |
| Bank Swallow.....             | u | u | u | u |
| Rough-winged Swallow.....     | u | u | u | u |
| Barn Swallow*.....            | u | u | u | u |
| Purple Martin.....            | r | u | u | u |
| Blue Jay*.....                | c | c | c | u |
| Common Crow.....              | u | u | u | u |
| Fish Crow.....                | u | u | r | u |
| Black-capped Chickadee*.....  | c | c | c | c |
| White-breasted Nuthatch*..... | u | u | u | u |
| Red-breasted Nuthatch.....    | u | u | u | u |
| Brown Creeper.....            | u | u | u | u |
| House Wren*.....              | u | u | u | u |
| Winter Wren.....              | u | u | u | u |
| Carolina Wren.....            | u | u | r | u |
| Long-billed Marsh Wren.....   | u | u | u | u |
| Mockingbird.....              | u | u | u | u |
| Catbird*.....                 | c | c | c | u |
| Brown Thrasher*.....          | u | u | u | u |
| Robin*.....                   | u | u | u | u |
| Wood Thrush*.....             | u | u | u | u |
| Hermit Thrush.....            | u | u | u | u |
| Swainson's Thrush.....        | u | u | u | u |
| Gray-cheeked Thrush.....      | u | u | u | u |
| Veery.....                    | u | u | u | u |
| Golden-crowned Kinglet.....   | u | u | u | u |
| Ruby-crowned Kinglet.....     | u | u | u | u |
| Water Pipit.....              | u | u | u | u |
| Cedar Waxwing.....            | u | r | u | u |
| Northern Shrike.....          | r | r | r | u |
| Loggerhead Shrike.....        | r | r | r | u |
| Starling*.....                | c | c | c | c |
| White-eyed Vireo*.....        | u | u | u | u |
| Yellow-throated Vireo.....    | u | u | u | u |
| Red-eyed Vireo*.....          | u | u | u | u |

|                              | S | S | F | W |
|------------------------------|---|---|---|---|
| Black-and-white Warbler..... | u | u | u | u |
| Worm-eating Warbler.....     | r | u | u | u |
| Golden-winged Warbler.....   | r | u | u | u |
| Blue-winged Warbler*.....    | u | u | u | u |
| Tennessee Warbler.....       | u | u | u | u |
| Parula Warbler.....          | c | c | u | u |
| Yellow Warbler*.....         | c | c | u | u |
| Magnolia Warbler.....        | u | u | u | u |
| Cape May Warbler.....        | u | u | u | u |
| Black-throated Blue Warbler. | u | u | u | u |
| Myrtle Warbler.....          | c | c | u | u |
| Black-throated Green Warbler | u | u | u | u |
| Blackburnian Warbler.....    | u | u | u | u |
| Chestnut-sided Warbler.....  | u | u | u | u |
| Bay-breasted Warbler.....    | u | u | u | u |
| Blackpoll Warbler.....       | u | u | u | u |
| Pine Warbler.....            | u | u | u | u |
| Prairie Warbler*.....        | u | u | u | u |
| Palm Warbler.....            | u | u | u | u |
| Ovenbird*.....               | u | u | u | u |
| Northern Waterthrush.....    | u | u | u | u |
| Louisiana Waterthrush.....   | u | u | u | u |
| Connecticut Warbler.....     | u | u | u | u |
| Mourning Warbler.....        | u | u | u | u |
| Yellowthroat*.....           | c | c | c | u |
| Yellow-breasted Chat.....    | u | u | u | u |
| American Redstart*.....      | c | c | u | u |
| House Sparrow*.....          | u | u | u | u |
| Bobolink.....                | r | r | u | u |
| Eastern Meadowlark.....      | u | u | u | u |
| Red-winged Blackbird*.....   | c | c | c | u |
| Orchard Oriole*.....         | c | c | u | u |
| Baltimore Oriole.....        | c | u | c | u |
| Rusty Blackbird.....         | u | u | u | u |
| Common Grackle*.....         | c | c | c | u |
| Brown-headed Cowbird*.....   | u | u | u | u |
| Scarlet Tanager*.....        | u | u | u | u |
| Summer Tanager.....          | u | u | r | u |
| Cardinal*.....               | c | c | c | u |
| Rose-breasted Grosbeak*..... | u | u | u | u |
| Evening Grosbeak.....        | u | u | u | u |
| Indigo Bunting.....          | r | u | u | u |
| Purple Finch.....            | c | c | u | u |
| House Finch.....             | c | c | c | c |
| Common Redpoll.....          | u | u | u | u |
| Pine Siskin.....             | u | u | u | u |

|                             | S | S | F | W |
|-----------------------------|---|---|---|---|
| American Goldfinch*.....    | u | u | u | u |
| Rufous-sided Towhee*.....   | c | c | c | u |
| Savannah Sparrow.....       | u | u | u | u |
| Sharp-tailed Sparrow.....   | u | u | u | u |
| Seaside Sparrow.....        | u | u | u | u |
| Slate-colored Junco.....    | c | c | c | u |
| Tree Sparrow.....           | u | u | u | u |
| Chipping Sparrow*.....      | u | u | u | u |
| Field Sparrow*.....         | u | u | u | r |
| White-crowned Sparrow.....  | u | u | u | u |
| White-throated Sparrow..... | c | c | c | c |
| Fox Sparrow.....            | u | u | u | u |
| Swamp Sparrow.....          | u | u | u | u |
| Song Sparrow*.....          | c | c | c | c |
| Snow Bunting.....           | u | u | u | u |

MORTON NATIONAL WILDLIFE REFUGE which was established in 1954 is located near the eastern end of Long Island, New York, on the north side of Noyack Road, five miles west of the old whaling village of Sag Harbor.

The refuge consists of an upland portion of 70 acres and a narrow, 110-acre peninsula extending into scenic Peconic Bay. One half of the peninsula is a low sandy beach dominated by American beachgrass and thickets of beach plum, the other half is higher ground covered by a hardwood forest. A three-acre brackish pond is located midway on the peninsula.

The primary objective of the refuge is to retain a natural haven for wildlife in the midst of Long Island's expanding recreational and residential developments. Greatest use by waterfowl occurs in November and December with black ducks being the predominant species. The brackish pond and western spit provide excellent locations for observing shorebirds during their migrations.



## Dangers During Migration

Tropical and winter storms often provide unusual opportunities for observing birds not normally seen on the refuge. The following is a list of accidental species that have occurred from time to time.

|                  |                  |
|------------------|------------------|
| Red-necked Grebe | American Avocet  |
| Gannet           | Iceland Gull     |
| Louisiana Heron  | Laughing Gull    |
| Yellow-crowned   | Black Skimmer    |
| Night Heron      | Sav-whet Owl     |
| Glossy Ibis      | Red-bellied      |
| Pintail          | Woodpecker       |
| Common Eider     | Western Kingbird |
| Bald Eagle       | Eastern Bluebird |
| Peregrine Falcon | Solitary Vireo   |
| Virginia Rail    | Western Tanager  |
| Stilt Sandpiper  | Pine Grosbeak    |
|                  | Red Crossbill    |

Please report any sightings of birds that are not included in these lists to:

Refuge Manager  
Target Rock National Wildlife Refuge  
Target Rock Road  
Huntington, Long Island, N.Y. 11743

One of the 84 groups led by Manager Schmid during the year. Some 119 groups totaling 2,578 individuals made use of the Morton facility during 1972. Although the number of individual visits is less than 1971, this use reflects a reduction in group size to accomodate maximum individual exposure to the environment.

Webb

Part of a group of pre-school youngsters who visited the refuge under a cooperative National Education Society and HEW environmental program.

Schmid



Except when hikers approach or boaters come ashore, this brackish pond thrives with wildlife. Osprey used the nest until driven from the area by human disturbances.

Webb

Typical summer visitors at Morton. The amount of paraphernalia carried down the one-half mile trail during the season is phenomenal.

Webb



More erosion occurred along the Morton bluffs than has been observed in several years. Undercutting caused by ice packs and extreme tides were aided by changing temperatures, above average precipitation and frequent winds in creating the sloughing.

Schmid

