

# WILDLIFE SESSION

## FOOD HABITS OF COASTAL MARSH RACCOONS WITH OBSERVATIONS OF ALLIGATOR NEST PREDATION

by

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### ABSTRACT

*Food habits of the coastal marsh raccoon, Procyon lotor megalodous Lowery, in Louisiana were studied from June 1973 to August 1974. The raccoon's role as predator of the eggs and hatchlings of the American alligator, Alligator mississippiensis, was also evaluated. Eight hundred and sixty-six raccoon scats were collected from the fresh, intermediate and brackish marsh types, an average of 24 scats per month per habitat type. Crustaceans (crawfish, fiddler crabs (Uca spp.), blue crabs (Callinectes sapidus) were the major food item consumed and comprised 49 percent of the yearly diets of raccoons. Fruits were important fall foods. Although not utilized in great quantities, insects were also important, particularly during periods of prolonged marsh flooding. A marked difference occurred between years in the incidence of raccoon predation on alligator nests ranging from no predation in the 1973 nesting season to 45 percent in 1974. The difference was believed related to water level and its influence on the feeding behavior and subsequent movement patterns.*

The raccoon is an adaptable species that is currently expanding its natural range, and has been successfully transplanted in areas of Europe, Asia, and elsewhere, and is greatly increased in numbers within its range in the United States (Johnson 1970). In recent years, its importance as a furbearer has increased with sales of its pelts contributing to the welfare of trappers in most states. Since 1928 sales of raccoon pelts from an average annual harvest of over 100,000 animals in Louisiana have provided an estimated mean yearly income of over \$212,000 to the state's trappers (adapted from Lowery 1974). In the 1973-74 trapping season alone, approximately 184,688 raccoons were harvested having a total value of \$1,317,660. Twenty-four percent of these were trapped from coastal areas. An additional \$300,000 were obtained from the sale of 1,000,000 pounds of meat from raccoon carcasses (pers. comm., G. Linscomb, La. Wildlife and Fisheries Commission, Sept. 1974). As a game animal, the raccoon is widely pursued by man and dogs, and hunters' expenditures add further to the general economy.

The raccoon has also been considered to be a serious predator of several other important wildlife species. Food habit studies indicate that raccoon predation on vertebrates is infrequent, but "in certain situations where vertebrates are abundant and easily obtained, they may be heavily utilized" (Johnson 1970). Errington (1963) found raccoon predation on muskrat populations prevented a buildup of their numbers. Other studies have indicated that the raccoon is a limiting factor on muskrat populations (Llewellyn and Webster 1960 and Wilson 1953). Joanen (1969) reported a 16.5 percent loss of alligator nests to raccoon predation. Raccoons are also known predators of nesting waterfowl (Urban 1969; Eaton 1969; Llewellyn and Webster 1960; Bellrose *et al.* 1964) and of other

marsh birds (Oney 1954) and are destructive to nests of sea turtles (Cagle 1949; Erickson and Scudder 1947). In upland areas, the raccoon has been described as a significant predator of young rabbits (Atkeson and Hulse 1953) and is suspected of being an important predator on the eggs of wild turkey in Alabama (Johnson 1970).

Food habit studies have shown that raccoon utilization of a food source is primarily dependent upon availability of the food source and preference and learning. Johnson (1970) reviewed the findings of several food habit studies, and concluded that although many feeding habits of raccoons were instinctive, learning seemed to play an important role, particularly in raccoon predation of vertebrates.

Although the exact nature of raccoon predation is not well understood, Johnson (1970) suggested that learning, and not just preference, might account for the utilization of food source by a raccoon population in one area, whereas that same food source might be virtually ignored in another; as an example, he cited the egg-eating trait of raccoons—a characteristic of some raccoon populations and not of others. He noted that raccoons were inefficient predators of mature birds and animals, but could be destructive to groundnesting birds and reptiles.

The majority of the research and scientific information has been gathered on the northern subspecies of the raccoon. Substantially less data have been gathered on the coastal subspecies. In Louisiana, two subspecies of the raccoon exist—the Alabama raccoon, *P. l. varius*, which occupies the northern two-thirds of the state, and the coastal marsh raccoon, *P. l. megalodous*, occupying the lower, gulf coastal zone (Lowery 1974). Although the latter race is widespread throughout the marshes of Louisiana, little is actually known about its life history. No specific biological data are available for its management, nor is there much current information as to its suspected predation on other managed wildlife species, particularly the alligator, muskrat (*Ondatra zibethicus*), and breeding waterfowl populations, although similar studies have been conducted elsewhere involving other subspecies of the raccoon.

## METHODS AND MATERIALS

Food habit information of raccoons in the brackish, intermediate and fresh marsh types (Chabreck, 1972) was obtained by collecting an average of 24 scats from each of these three marsh zones monthly from 1 July 1973 to 30 June 1974. Generally, spoil levees traversing each marsh type were walked weekly in the summer and fall and less often in the winter months. Scats collected were labeled as to date and area and then frozen for later examination.

Food items were grouped into one of five major categories: (1) mammals, birds and reptiles; (2) fish; (3) crustaceans; (4) insects and (5) plants. The percent frequency of occurrence and percent of total diet were calculated monthly for each major category. Arbitrary values of "three, two or one" were assigned to an individual food item based upon its volume in each scat. An item comprising less than 33 percent of the total value of a scat was assigned a value of "one", between 33 and 66 percent, a value of "two" and over 66 percent, a value of "three". Seasonal averages for both percent frequency of occurrence and relative volume estimates were then computed.

To assess the role of the raccoon as a predator of the eggs and hatchlings of the alligator, all alligator nests within a one square mile section of intermediate marsh of known high populations of both raccoons and nesting alligators were located, marked and observed during the 1973 and 1974 nesting seasons for signs of nest predation. Egg clutches within each alligator nest were sprayed with a three percent solution of Rhodamine B industrial dye. Scats were collected weekly throughout the incubation period and checked for egg shell fragments or alligator remains stained by the dye.

## RESULTS

Eight hundred and sixty-six raccoon scats were collected with an average of 24 scats per month for each of the three marsh types sampled. Results of the scat analyses are presented by season and areas in Tables 1, 2, and 3. The monthly changes in consumption

Table 1. Foods of raccoons on the chenier and adjacent marsh.

Food Item	Spring		Summer		Fall		Winter	
	% Freq. Occur.	Relat. Vol.	% Freq. Occur.	Relat. Vol.	% Freq. Occur.	Relat. Vol.	% Freq. Occur.	Relat. Vol.
Mammals:								
Rabbit	5.6	1.0	4.4	2.0	1.3	1.0	12.5	2.2
Birds:								
Unident.	5.6	2.0	0.0	0.0	1.3	2.0	5.0	1.5
Fish:								
Unident.	16.6	2.2	0.0	0.0	2.6	2.0	27.5	2.1
Crust:								
Crawfish	66.6	2.7	46.7	2.7	22.3	2.1	87.5	2.6
Blue Crab	0.0	0.0	1.0	3.0	0.0	0.0	0.0	0.0
Insects:								
Dragonfly	30.6	2.8	13.0	2.1	1.3	1.0	17.5	2.2
Beetle	16.7	2.0	4.3	1.9	6.6	2.4	17.5	2.6
Grass-hopper	19.4	2.9	1.1	3.0	4.0	2.7	10.0	2.7
Plants:								
Persimmon	0.0	0.0	5.4	1.7	10.5	1.5	0.0	0.0
Pokeweed	0.0	0.0	0.0	0.0	4.0	3.0	0.0	0.0
Acorns	0.0	0.0	4.3	1.8	17.1	2.8	2.5	2.0
Peppervine	0.0	0.0	33.7	2.2	1.3	3.0	0.0	0.0
Mustang								
Grapes	0.0	0.0	8.7	2.8	0.0	0.0	0.0	0.0
<i>Rubus</i> spp.	0.0	0.0	1.1	3.0	0.0	0.0	0.0	0.0
Hackberry	0.0	0.0	19.7	2.7	30.0	2.4	0.0	0.0
Palmetto	0.0	0.0	0.0	0.0	44.7	2.4	5.0	2.5
<i>Craetagus</i> sp.	0.0	0.0	0.0	0.0	5.3	3.0	0.0	0.0
Sea Matri-mony	0.0	0.0	0.0	0.0	1.3	1.0	0.0	0.0
Unknown plant material	0.0	0.0	3.3	2.0	2.6	3.0	5.0	1.0

of the five major food categories, based upon their percent frequency of occurrence and tabulated as percent of the total diet, are illustrated by habitat Type in Figure 1.

Volume estimates were in general agreement with the frequency of occurrence percentages tabulated for each food item, i.e., as a food item's occurrence in the fecal samples increased, so did its relative volume. The close association between both figures would be expected of an animal utilizing a food resource in relation to availability. In items, the frequency of occurrence percentages, tabulated and presented as percent of the total diet, are used since they also reflect the relative volume of each food item consumed.

#### All Marsh Habitats

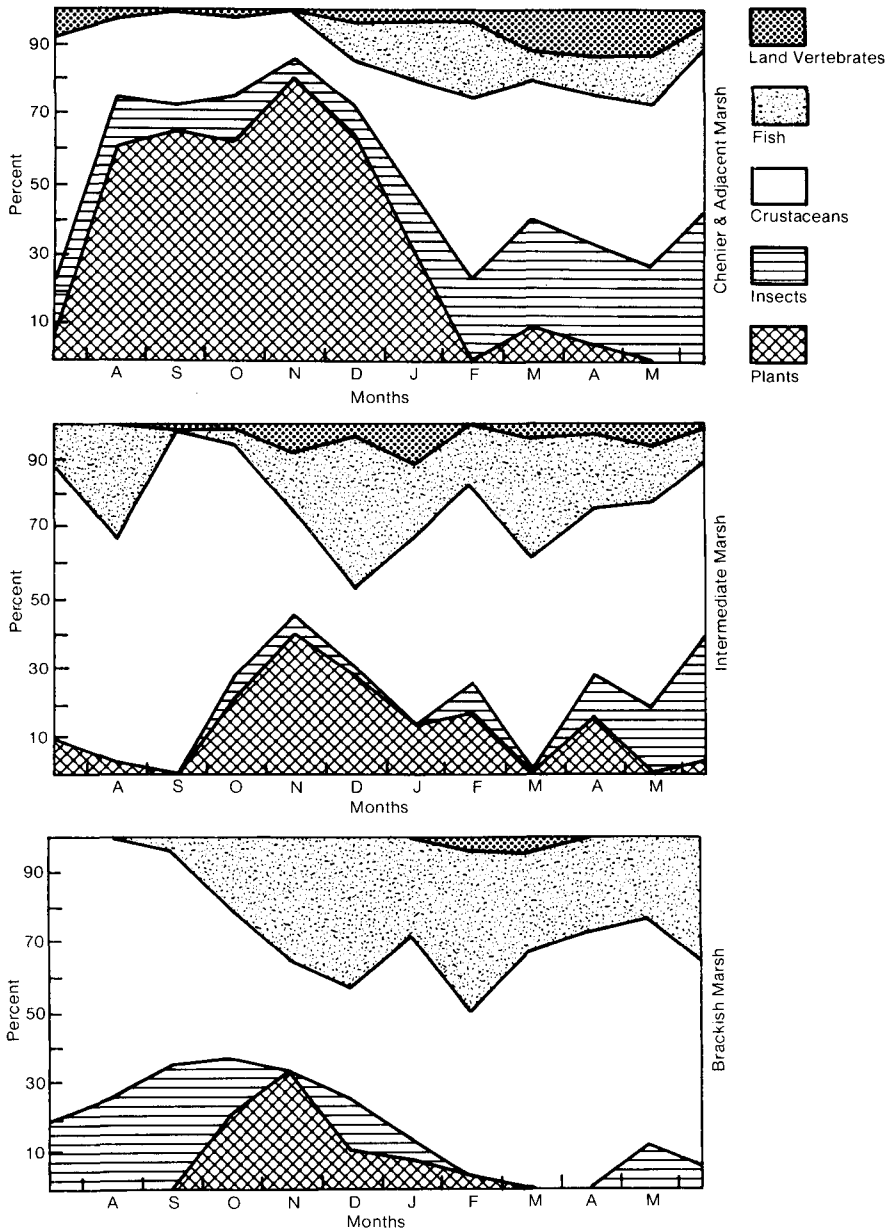
Crustaceans were the major food item consumed throughout the year for all three marsh zones and comprised 49 percent of the raccoons' yearly diet. Important crustaceans taken included crawfish, fiddler crabs, blue crabs, and shrimp (*Penaeus* spp.). Fruits of several plants and fish were important foods in the late summer and fall and made up 17 and 16 percent, respectively, of the total diet. Palmetto (*Sabal minor*), peppervine (*Ampelopsis arborea*), hackberry (*Celtis laevigata*), acorns from live oaks (*Quercus virginiana*), grapes (*Vitis* sp.) and persimmons (*Diospyros virginiana*) were important food plants on the elevated cheniers, while hogcane, *Spartina cynosuroides*, was the only vegetation utilized by raccoons in the marsh.

Table 2. Foods of raccoons in the intermediate marsh.

Food Item	Spring		Summer		Fall		Winter	
	% Freq. Occur.	Relat. Vol.	% Freq. Occur.	Relat. Vol.	% Freq. Occur.	Relat. Vol.	% Freq. Occur.	Relat. Vol.
Mammals:								
Rabbits	7.3	2.0	0.0	0.0	5.6	2.3	6.3	3.0
Birds:								
Unident.	1.8	1.0	1.4	3.0	3.7	2.5	3.8	1.3
Fish:								
Unident.	23.6	2.5	22.9	2.1	28.9	2.3	30.3	2.7
Crust:								
Crawfish	76.3	2.4	87.8	2.7	49.5	2.6	46.8	2.6
Blue Crabs	1.8	3.0	24.3	2.1	6.5	1.5	20.2	2.6
"Fiddler" Crabs	0.0	0.0	0.0	0.0	0.0	0.0	1.2	3.0
Crab spp.	0.0	0.0	0.0	0.0	0.0	0.0	2.5	3.0
Shrimp	1.8	3.0	0.0	0.0	0.0	0.0	0.0	0.0
Insects:								
Dragonfly	7.3	2.8	2.7	2.0	0.0	0.0	1.3	1.7
Beetle	7.3	2.1	1.4	1.9	1.9	2.2	1.3	1.2
Grasshopper	7.3	2.9	0.0	0.0	1.0	2.0	0.0	0.0
Plants:								
Hogcane	1.8	1.0	0.0	0.0	29.9	2.9	5.1	2.8
Pokeweed	0.0	0.0	0.0	0.0	9.3	1.6	0.0	0.0
Cucumis spp.	0.0	0.0	0.0	0.0	2.8	2.3	0.0	0.0
Unknown plant material	1.8	3.0	0.0	0.0	0.9	1.0	10.1	2.6

Table 3. Foods of raccoons in the brackish marsh.

Food Item	Spring		Summer		Fall		Winter	
	% Freq. Occur.	Relat. Vol.	% Freq. Occur.	Relat. Vol.	% Freq. Occur.	Relat. Vol.	% Freq. Occur.	Relat. Vol.
Birds:								
Unident.	0.0	0.0	0.0	0.0	0.0	0.0	4.7	1.7
Fish:								
Unident.	36.5	2.9	1.5	1.0	41.6	2.8	24.2	2.7
Crust:								
Fiddler crabs	52.4	2.6	62.7	2.8	39.8	2.2	17.2	2.8
Blue crabs	27.0	2.4	28.4	2.7	4.4	1.7	9.4	2.3
Crab spp.	0.0	0.0	0.0	0.0	0.9	1.0	5.5	1.8
Shrimp	3.2	3.0	0.0	0.0	0.0	0.0	2.3	3.0
Insects:								
Dragonfly	65.9	2.7	11.9	2.0	6.2	1.1	0.0	0.0
Beetle	0.0	0.0	1.5	1.5	0.0	0.0	1.6	1.9
Grasshopper	0.0	0.0	19.4	2.3	7.1	2.0	0.0	0.0
Mollusk:								
Modiolus spp.	0.8	2.0	0.0	0.0	0.0	0.0	0.0	0.0
Plants:								
Hogcane	0.0	0.0	0.0	0.0	26.6	2.7	4.7	2.7



**Figure 1**

Monthly changes in the consumption of foods by raccoons in the fresh, intermediate and brackish marsh zones (based upon percent frequency of occurrence and tabulated as percent of the total diet), Rockefeller Wildlife Refuge, July 1973 through June 1974.

Insects were eaten throughout the year and accounted for 14 percent of the diet. Dragonflies, grasshoppers and various beetles made up most of the insect material consumed. Although not taken in great quantities, insects were important food items in the late summer and early spring and during periods of prolonged flooding of the marsh following extremely high tides, severe thunderstorms and tropical disturbances. Consumption of land vertebrates was infrequent. Rabbits, several species of birds and eggs of reptiles formed the bulk of land animals eaten.

#### *Cheniers and Adjacent Fresh Marsh*

Crustaceans, mainly crawfish, comprised 38 percent of the animals' yearly diet and provided most of the food for raccoons during the winter and spring months. Fruits were most important in the fall and made up 30 percent of the food utilized throughout the year. Peppervine and sugar hackberry were abundant on the cheniers and were the first plants used in any quantity during the summer months.

Grapes were available in July and August and were heavily utilized during this period. The fruit of hackberry and peppervine provided a major portion of the diet during the summer and early fall. Acorns were important for a brief period in the fall.

In late fall the fruits of pokeberry (*Phytolacca americana*), *Crataegus* sp., persimmon and particularly palmetto dominated the diet. Raccoons relied more heavily on animal food as winter progressed and plant reserves were depleted. Fish, mainly shad, (*Dorosoma* spp.), mullet (*Mugil* spp.), and several species of minnows, and land vertebrates, swamp rabbits, *Sylvilagus aquaticus*, and passerine birds, accounted for seven and five percent, respectively, of the raccoons' total diet and were important food resources throughout the winter months.

Insects comprised 20 percent of the yearly diet, becoming an important food in early spring. Together with crawfish, they were the major foods of raccoons from February to July when summer fruits again became available. Dragonflies and beetles were the insects most commonly eaten.

#### *Intermediate or Slightly Brackish Marsh*

With the exception of the fall months, crustaceans assumed an even greater importance in the yearly diets of raccoons inhabiting intermediate marshes than those in fresh water marshes. Crustaceans comprised over 50 percent of the foods eaten by raccoons throughout the year and varied from a low of 22 percent in December to a high of 98 percent in September.

The most important crustaceans utilized were crawfish but blue crabs and fiddler crabs were also consumed. The appearance of blue crabs in the scats increased from 10 to 34 percent in the monthly diets of raccoons during the summer months, and from 2 to 27 percent of the food consumed from January to March. Fiddler crabs and shrimp were taken infrequently.

Utilization of fish was also higher than in the fresh marsh zone and amounted to 19 percent of the total diet. They accounted for 43 percent of the food utilized in December.

Fruits were scarce in this habitat type and the occurrence of plant material in scats amounted to only 12 percent of the total diet. The stems and tubers of hogcane were the primary plant foods taken and made up 29 and 26 percent of the foods eaten during November and December. Other less important plants that appeared in the fall scats of raccoons included the fruits of pokeberry and muskmellon, *Cucumis* sp., two plants commonly found on spoil deposits.

Insects comprised only nine percent of the yearly diet of raccoons inhabiting this habitat. However, insects, particularly dragonflies and several species of beetles, were important during the spring and accounted for 18 and 44 percent of the food utilized during May and June, respectively.

Land vertebrate remains were recorded primarily in late spring and fall and in early winter. Swamp rabbits and unidentified birds comprised 8 and 3 percent of the food eaten in November and 9 and 5 percent of the total diets of raccoons in January. Whether raccoons were preying on young rabbits or capturing adults, or merely scavenging the kills left by other predators (possibly mink) was not determined. The remains of a snake, *Natrix* spp., and egg shell fragments occurred in several scats collected in May.

### *Brackish Marsh*

Animal material made up 94 percent of the diet of raccoons inhabiting the brackish marsh compared to 88 and 70 percent of animal matter ingested by those in the intermediate and fresh marsh zones, respectively. Crustaceans occurred in 57 percent of the scats collected and were composed primarily of fiddler crabs and blue crabs. Raccoons fed almost exclusively on these species during the summer months. Fiddler crabs were important throughout the year while blue crabs were significant only during the spring and summer. Crawfish and shrimp were also eaten, but in lesser quantities.

Fish were consumed in greater amounts than in either the fresh or intermediate marshes (25 percent of the total diet). They were heavily utilized during the fall and to a lesser extent in spring and summer.

Insects comprised from 17 to 33 percent of the food used from June through September but were of lesser importance during the fall months. Insects were also eaten in spring but formed a less important part of the diet. Dragonflies and beetles again accounted for most of the insect material consumed.

Plants made up only 6 percent of the diet. Hogcane was the only plant recorded and made up 34 percent of the fall food.

Land vertebrates were rarely utilized and occurred only in February and March. Examination of scats yielded only two occurrences of food items in this category, both were boat-tailed grackles (*Cassidix major*). Mussels (*Modiolus* spp.) were also eaten by raccoons but left little residue in the scats.

### *Saline Marshes Adjacent to the Beach Rim*

Although no fecal samples were systematically collected from this area, examination of several scats and observation of feeding sign and behavior indicated that ghost crabs, *Ocyopode* sp., fish, grasshoppers and tubers, stems and seeds of oystergrass formed the major diet of raccoons in the saline marshes.

### *Sources of Error*

Possible biases exist in the sampling techniques used to determine seasonal changes in the food consumption of raccoons and these biases deserve mentioning. Johnson (1970) reviewed the problems involved in determining the food habits of species from the contents of scats and colons. Bulky fruits may be over-represented while "soft-bodied animals and easily digestible material may leave an unrecognizable residue or none at all".

Fecal samples were easily collected in the intermediate and brackish marsh zones by walking levees. The degree of bias introduced by this technique was not evaluated but foods more widely dispersed throughout the marsh were probably underrepresented in the data. Although biases may exist in the data collected, it is felt that the information obtained presents a reasonably accurate representation of the diet of raccoons in the different marsh zones.

### *Raccoon Predation of Alligator Nests*

During 1973 and 1974, 20 alligator nests were located each summer in the study area. All nests were in natural marsh (except for one levee nest in 1974) and were typically constructed near the edges of bayous, ponds, and small lakes. The nests were checked weekly for signs of raccoon predation during the 1973 alligator nesting season and four times during the 1974 season. Egg clutches within each nest were sprayed with Rhodamine B Dye solution during the 1973 nesting season only. A summary of the nesting data and predation by raccoons is presented in Table 4.

To evaluate the duration of the dye's effects, scats from captive raccoons fed dyed alligator eggs were examined for stained shell fragments under a fluorescent light to determine the duration of "tagging". Raccoons were also fed hatchling alligators and later their scats were examined to determine what, if any, remnants could be detected.

Visible effects of the dye were apparent for four days and for an additional four days when examined under a fluorescent light. Egg shell fragments, integument and vertebrae were also present in a majority of the scats. Although the feasibility of detecting raccoon predation of alligator eggs and hatchlings through scat analysis was demonstrated,

Table 4. Raccoon predation on alligator nests, Rockefeller Wildlife Refuge, 1973-1974.

Date Examined	Estimated Days from Egg Laying	Nests Hatched		Nests Unhatched		Nests Predation		Total Nests	
		No.	%	No.	%	No.	%	No.	%
1973 Nesting Season									
7-3	9	0	0	20	100	0	0	20	100
7-12	18	0	0	20	100	0	0	20	100
7-26	32	0	0	20	100	0	0	20	100
8-10	46	0	0	20	100	0	0	20	100
8-19	55	0	0	20	100	0	0	20	100
8-29	65	5	25	15	75	0	0	20	100
9-6	73	9	47	10*	53	0	0	19	100
1974 Nesting Season									
7-4	4	0	0	20	100	0	0	20	100
7-14	14	0	0	20	100	0	0	20	100
8-20	49	0	0	18	90	2	10	20	100
9-6	63	5	5	6	30	9	45	20	100

\*Terminated by high water resulting from tropical storm Delia, 3 September 1973.

difficulty in collecting an adequate number of fecal samples from representative parts of the study area remained a problem.

Observation of nests and examination of scats during the incubation period indicated that no predation by raccoons occurred during the 1973 alligator nesting season. However, nest losses did result from storms and other predators. Fifty three percent of the 20 nests were terminated by high water resulting from tropical storm Delia during the final week of incubation. Three days after the storm had passed, a Great Blue Heron, *Ardea herodias*, was observed near a partially submerged nest, feeding on hatchling alligators that had survived the storm.

Raccoons destroyed 45 percent of the nests in 1974. Two nests (10 percent) were destroyed at the end of the seventh week of incubation and seven more (35 percent) in the following two weeks. A pair of otters were observed feeding near a destroyed nest, but whether they or raccoons had initially disturbed the nest could not be determined. Five (30 percent) of the nests had hatched successfully and six (30 percent) remained unhatched when last examined.

*Relationship of Raccoons to Nesting Alligators*

Joanen (1969), working on Rockefeller Refuge, reported that the predation by raccoons varied considerably from year to year. Of 226 nests followed from 1965-68, 44 or 16.5 percent of the total nests were destroyed by raccoons. Of eight levee nests, 4 or 50 percent were lost to raccoons. He reported that predation followed a characteristic pattern and occurred "just after the eggs begin to crack along the longitudinal axis, usually at the end of the seventh week of incubation. Once a nest was located, raccoons would usually visit three to four times, eating eggs on each visit, returning to the nest every few days until all the eggs had been eaten. Only on a few occasions did the raccoons leave a portion of the eggs uneaten . . . No attempts were made by the female (alligator) to protect these nests and in one case the female was present at the nest site".

Nest predation observed in this study followed the same pattern. Raccoons had little difficulty locating and digging out egg clutches within the large nests of matted vegetation as evidenced by the minimal disturbance and single hole excavated in the nest material.



Urban (1969) investigated raccoon predation on a managed waterfowl marsh and related the degree of predation on nests to "the number of predators, their efficiency in finding nests, their predilections for (duck) eggs, and the type of nesting habitat available". He concluded that "nest destruction may be more related to a particular raccoon's location than to its age or sex (and felt that) a few raccoons may be responsible for a majority of the predation attributed to the total raccoon population".

Data gathered in this study showed a marked difference between years in the incidence of raccoon predation on alligator nests. The heavy utilization of alligator eggs and hatchlings (45 percent) in 1974 occurred during a summer of relatively normal water levels. The absence of predation by raccoons on alligator nests during the summer of 1973 followed a year of excessive rainfall and abnormally prolonged high marsh water levels.

Information obtained from a related behavior study and the food habit study indicates a relationship between food availability and marsh water levels and the degree of predation by raccoons on alligator nests. During the summer of 1973, high water levels and unusually favorable food conditions (an abundance of crawfish) prevailed. Most raccoon activity was restricted to areas of high crawfish concentrations and assessibility, i.e., the berms of levees and adjacent marsh. Consequently, the amount of nightly travel and time spent in the vicinity of alligator nests was low. Although some raccoon movements did occur around nesting areas, the significantly higher availability of preferred foods (crawfish) resulted in lower nest predation.

In normal years, this summer movement pattern changed, as raccoons concentrated their activities along the edges of water areas while searching for fish. The time spent in the vicinity of most alligator nests would increase the likelihood of predation as preferred food sources would be less available.

The increased nest predation observed in the 1974 nesting season (45 percent as compared to 16.5 percent reported by Joanen 1969) probably resulted from the relatively low production of crawfish that year. Predation on terrestrial vertebrates would be expected to increase under such conditions.

## SUMMARY

A total of 866 raccoon scats were collected for food habit studies. An average of 24 scats per month were examined from each marsh zone (fresh, intermediate and brackish). Animal material in the diets of raccoons increased in the more saline types. Plant material was more important in fresh marshes adjacent to cheniers which supported abundant mast producing plants.

Crustaceans (crawfish, fiddler crabs and blue crabs) were the major food item consumed and comprised 49 percent of the raccoons' yearly diet. Plant material and fish were important foods in the late summer and fall. Major plant foods on the chenier included the fruit of palmetto, peppervine, hackberry, live oak acorns, grapes and persimmons. *Spartina cynosuroides* was the only plant material utilized regularly by raccoons in the marsh. Insects, dragonflies and several species of beetles were utilized to a limited extent throughout the year and were important food items in late summer and early spring and during periods of prolonged flooding.

To assess the role of the raccoon as a predator on alligator nests, all nests within the study area (approximately one square mile) were located, marked and examined periodically during the 1973 and 1974 alligator nesting seasons. In addition to visual observations of nest predation and information obtained from radio-instrumented raccoons, egg clutches within each nest were sprayed with Rhodamine B dye solution in the 1973 season. Scats were collected and examined for alligator remains or traces of the dye.

A significant difference was detected between years in the incidence of raccoon predation on alligator nests. No predation was recorded for the 20 nests observed during the summer of 1973. In 1974, 45 percent of the nests were destroyed by predation. The difference was attributed to prolonged high water levels in the summer of 1973 which resulted in a change in feeding activity and restricted raccoon movements to favored feeding areas (berms of levees and adjacent marsh). Travel and time spent in the vicinity

of alligator nests was lessened in 1973 and food availability (crawfish) was significantly higher. During dry summers, when preferred foods are not available, raccoons spend more time searching for fish around open water areas in the vicinity of alligator nests, thereby increasing the likelihood of nest predation.

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<sup>1</sup> U.S. Fish and Wildlife Service, Louisiana State University, Louisiana Wildlife and Fisheries Commission and Wildlife Management Institute Cooperating.