Fall Foods of Adult Alligators from Cypress Lake Habitat, Lousiana

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Abstract: Stomachs from 111 adult-size (≥1.83 m) alligators (*Alligator mississippiensis*) were collected during September 1981 and 1982. Alligators were harvested from cypress (*Taxodium distichum*) lake habitat. Reptiles and amphibians ranked highest in frequency of occurrence, but mammals were the most important food items in percent weight and percent volume. Reptiles and amphibians, primarily turtles, were second in importance, followed closely by fish, primarily non-game species. Non-food items comprised almost 25% of stomach contents by weight and volume.

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Food habitat studies of adult alligators in Louisiana's coastal marsh (McNease and Joanen 1977) indicated nutria (*Myocastor coypus*) as the major food item, while blue crabs (*Callinectes sapidus*) and crayfish (*Procambarus sp.*) were the principal foods eaten by immature alligators less than 1.83 m in length in the same habitat type (Giles and Childs 1949, Chabreck 1971, Valentine et al. 1972).

In a study of both mature and immature alligators in 1941–1942, O'Neil (1949) determined that blue crabs and crayfish were eaten most frequently, followed by muskrat (*Ondatra zibethicus*). In 1985, in the same area, stomachs of adult-sized alligators contained blue crabs and crayfish, followed by nutria in frequency of occurrence, while nutria was the most important food item in precent weight and volume (K. Sloan, pers. commun.). Fogarty and Albury (1967) found that 36 stomachs from immature alligators from a canal in the Everglades contained invertebrates (98%) with apple snails (*Pomacea paludosa*) comprising 65.8% by volume of the stomach contents.

Delany and Abercrombie (1986) sampled 350 alligator stomachs from north-central Florida and determined that invertebrates and terrestrial species were important foods for subadults, while turtles and fish were most important in the diets of larger size classes. Nutria do not occur in that area, and, therefore, were absent in the stomachs sampled.

This study was initiated to determine the major foods eaten by adult-size alligators within cypress lake habitat. Approximately 40,000 ha of this habitat type

occur within Louisiana, outside of the coastal marsh and cypress swamp habitat types. No previous work has been done regarding alligator diets within this habitat type.

Appreciation is extended to all personnel who collected alligator stomachs during the 1981–1982 hunting season.

Methods

Prior to the September 1981 and 1982 alligator hunting seasons, alligator hunters, whose names were drawn for hunting public lakes, were asked to save stomachs from their kills and preserve them by freezing. All alligators were captured by baited hook and line, pulled to the water's surface, and killed. Following the removal of the skin, the contents of the body cavity were removed, placed in a plastic bag, and frozen. The size of each alligator was recorded.

A total of 111 stomachs from adult-size alligators between 1.83 m and 3.73 m in length were collected from hunters and preserved in 10% formalin. Stomach contents were later separated, identified to the lowest possible taxon, measured volumetrically for water displacement, and their wet weights recorded.

Cypress lake habitat is characterized by the presence of cypress trees, as well as tupelo-gum (*Nyssa aquatica*), buttonbush (*Celphalanthus occidentalis*), and black willow (*Salix nigra*) or some combination of these woody species. Some combination of submergent or emergent vegetation such as water hyacinth (*Eichornia crassipes*), American lotus (*Nelumbo lutea*), coon-tail (*Ceratophyllum demersum*), smartweed (*Polygonum sp.*), water pennywart (*Hydrocotyl sp.*) giant cutgrass (*Zizaniopsis gigantia*), cattail (*Typha latifolia*), duckweed (*Lemna sp.*), alligator weed (*Alternantheria philoxeroides*), water primrose (*Ludwigia paploides*), false loostrife (*Ludwigia leptocarpa*), and bur marigold (*Bidens laevis*) occurs within cypress lakes which support alligator populations.

Some cypress lakes are oxbows in origin, while others are man-made reservoirs. Sizes of lakes from which these stomach samples were taken ranged from 200 ha to 1,200 ha of habitat, with maximum water depths ranging from 2 to 3 m. Vegetative types surrounding these lakes include agricultural land, bottomland hardwoods and mixed pine-hardwoods.

Results and Discussion

Seventy-six of 111 stomachs contained food items. The remaining 35 had no food items, while 6 of these were completely empty, and 7 contained only bait. Ninety-eight of the stomachs contained non-food items.

Reptiles and amphibians ranked highest in frequency of occurrence (Table 1). Reptiles, primarily turtles, were found in 62 of 111 stomachs (55.9%), while 1.8% contained bullfrogs (*Rana catesbiana*), the only amphibian detected. Fish were second in frequency with non-game fish occurring in 44% of the samples and game fish in 4% of the stomachs. Third in frequency were mammals, with nutria being

Table 1. Contents of 111 adult alligator stomachs from cypress lake habitat, Louisiana, September 1981–1982.

Item	Percent occurrence		
	Frequency	Weight[a]	Volume[a]
Food	68.5	76.8	75.3
Mammals	24.3	31.7	35.4
Nutria (*Myocastor coypus*)	13.5	13.8	14.8
Raccoon (*Procyon lotor*)	3.6	12.3	15.1
Hog	1.8	3.9	3.5
Dog	1.8	0.2	0.2
Mink (*Mustela vison*)	0.9	Tr.	Tr.
Opossum (*Didelphis virginiana*)	0.9	0.6	0.8
Unidentified har	1.8	0.8	0.8
Reptiles and amphibians	57.7	29.9	26.6
Red-eared turtle (*Chrysemys sp.*)	7.2	6.9	6.3
Mud turtle (*Kinosternon sp.*)	2.7	0.5	0.4
Turtles, unidentified	38.7	20.0	17.7
Alligator eggs	6.3	1.1	1.0
Alligator parts	4.5	Tr.	Tr.
Bullfrog (*Rana catesbiana*)	1.8	0.7	0.6
Snakes, unidentified	2.7	0.5	0.5
Fish	47.8	23.3	23.7
Garfish (*Lepisosteus sp.*)	8.1	9.4	9.3
Drum (*Aplodinotus grunniens*)	7.2	0.7	0.5
Buffalo (*Ictiobus sp.*)	6.3	2.1	2.6
Carp (*Cyprinus carpio*)	4.5	2.5	2.8
Bowfin (*Amia calva*)	0.9	2.9	2.9
Skip-jack herring (*Pomolobus chrysochloris*)	0.9	0.9	0.3
Catfish (*Ictalurus sp.*)	0.9	0.5	0.5
Warmouth (*Chaenobryttus gulosus*)	0.9	0.6	0.6
Bass (*Micropterus salmoides*)	0.9	0.6	0.6
Bream (*Lepomis sp.*)	2.7	0.5	0.5
Fish, unidentified	15.3	3.0	3.0
Birds	10.8	14.8	14.0
Mallard (*Anas platyrhynchos*)	3.6	7.5	7.4
Wood duck (*Aix sponsa*)	0.9	1.9	1.7
Waterfowl, unidentified	0.9	Tr.	Tr.
American coot (*Fulica americana*)	1.8	4.7	4.3
Barred owl (*Strix varia*)	0.9	Tr.	Tr.
Hawk (*Buteo sp.*)	0.9	Tr.	Tr.
Common grackle (*Quiscalus quiscula*)	0.9	0.4	0.5
Birds, unidentified	0.9	Tr.	Tr.
Crustaceans			
Crayfish (*Procambarus sp.*)	9.0	0.3	0.3
Gastropoda			
Snail (*Helix sp.*)	0.9	Tr.	Tr.
Annelida			
Earthworm (*Lumbricus sp.*)	0.9	Tr.	Tr.
Non-food	88.3	23.2	24.7
Rocks	27.0	27.9[b]	18.3[b]
Metal	18.9	6.1	2.5
Glass	5.4	0.8	0.7
Plastic	11.7	24.9	35.3
Vegetation	26.1	8.5	9.8
Decayed wood	23.4	31.9	33.4

[a]Percent weight and volume based upon total food items only.
[b]Percent weight and volume based upon total non-food items only.

the most common. Waterfowl occurred in 5.4% of the stomachs. Crayfish were the only other major food item. Mammals ranked highest in percent occurrence by both weight and volume; reptiles and amphibians accounted for 30% by weight and 27% by volume.

Non-food items occurred in 88% of the stomachs and comprised 23% by weight and 25% by volume of all stomachs sampled (Table 1). Water hyacinth was the most commonly found vegetation in stomachs.

The high frequency of occurrence of turtles (55.9%) probably is not representative. Delany and Abercrombie (1986), in digestion trials, determined that turtle epidermal scutes were present after 5 days of digestion.

Nine of 76 stomachs containing food items contained alligator egg membranes and/or small pieces of young alligators. It is assumed that due to the size of the identifiable pieces, those were unhatched embryos or dead young at the nest site after the young hatched. Because in lake habitat hatching occurs during the hunting season, it is unlikely those remains represented hatchlings which had moved away from the nest site and were then eaten.

Birds were found in only 12 stomachs containing food. Although cattle egret (*Bubulcus ibis*) rookeries occur frequently within this habitat type, no egrets were identified in the stomachs. Although no data are available on the relative availability of food species within most of these cypress-tupelo gum habitat lakes, nutria, fish, turtles, frogs and crayfish abound, along with many species of birds, including waterfowl.

Contents of these stomachs suggest that alligators forage opportunistically and, in the process of feeding, pick up relatively large quantities of non-food items. Stomachs containing no food items comprised 31.5% of the total stomachs examined possibly reflecting the frequency of feeding or the rate of digestion.

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