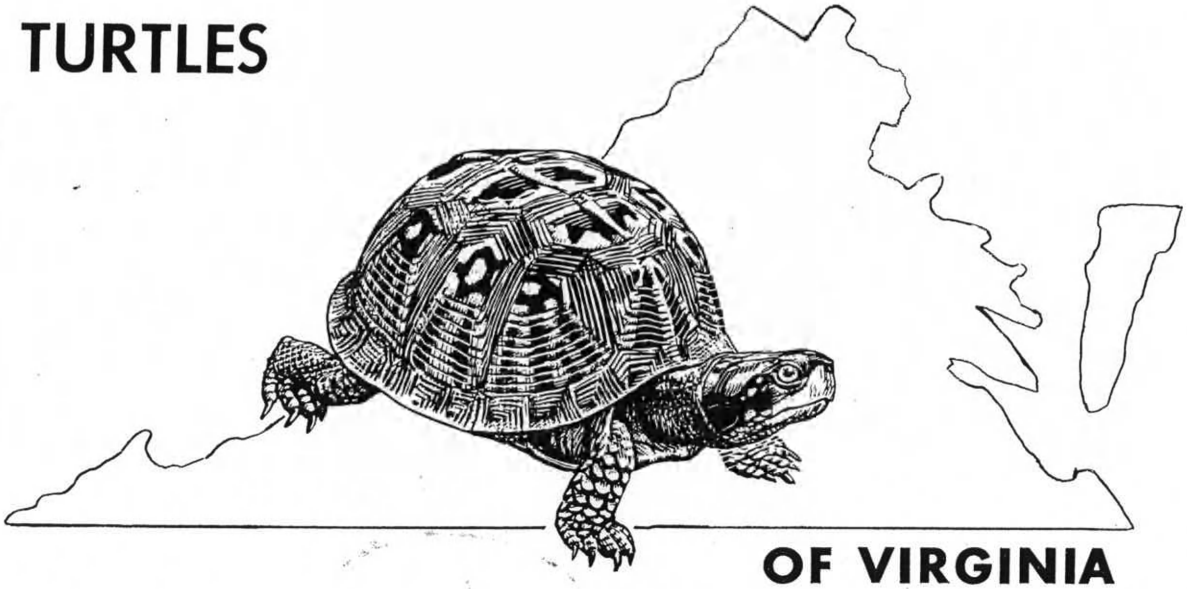
#57-59

VIRGINIA HERPETOLOGICAL SOCIETY SPECIAL BULLETIN

TURTLES



OF VIRGINIA

DESCRIPTION OF THE TURTLES OF VIRGINIA

Va. Herpetological Survey

The identification of turtles depends, primarily, upon the plates of the shells, above and below, as well as the head, and coloration.

It will be necessary to have, or to gain, some familiarity with the names for plates of the shells and head and their arrangement. Some diagrams have been included with this special bulletin to assist in making identification in the field. Please report unusual specimens.

The size of the turtle is taken with the aid of calipers, a tool which measures the shortest distance between the front rim and rear rim without considering or dealing with the shell's curve. Out of necessity, large sea turtle measurements are taken with a tape measure along the curved ridge of the back. Although interesting, a record for extreme size is not as important for survey purposes as a locality record (see VHS-B No.58.)

1. Atlantic Loggerhead
2. Atlantic Green Turtle
3. Common Snapping Turtle
4. Eastern Painted Turtle
5. Midland Painted Turtle
6. Spotted Turtle
7. Wood Turtle
8. Bog Turtle
9. Eastern Chicken Turtle
10. Atlantic Leatherback
11. Atlantic Hawksbill
12. Map Turtle
13. Ouachita Map Turtle
14. Eastern Mud Turtle
15. Atlantic Ridley
16. No.Diamond-backed Turtle
17. River Cooter
18. Florida Cooter
19. Red-bellied Turtle
20. Yellow-bellied Turtle
21. Cumberland Turtle
22. Stripe-necked Musk Turtle
23. Stinkpot
24. Eastern Box Turtle
25. Eastern Spiny Softshell Turtle

1. Caretta caretta caretta
2. Chelonia mydas mydas
3. Chelydra s. serpentina
4. Chrysemys picta picta
5. Chrysemys picta marginata
6. Clemmys guttata
7. Clemmys insculpta
8. Clemmys muhlenbergi
9. Deirochelys r. reticularia
10. Dermochelys c. coriacea
11. Eretmochelys i. imbricata
12. Graptemys geographica
13. Graptemys pseudogeographica ouachitensis
14. Kinosternon s. subrubrum
15. Lepidochelys olivacea kempi
16. Malaclemmys t. terrapin
17. Pseudemys concinna concinna
18. Pseudemys concinna floridana
19. Pseudemys r. rubriventris
20. Pseudemys scripta scripta
21. Pseudemys scripta troosti
22. Sternotherus minor peltifer
23. Sternotherus odoratus
24. Terrapene carolina carolina
25. Trionyx spinifer spinifer

(June-July 1968)

THE OCCURRENCE OF THE EASTERN CHICKEN TURTLE IN SOUTHEASTERN VIRGINIA

by: Roger Henry deRageot, VHS
Past-President (1963-'64)

The Eastern Chicken Turtle -- (Deirochelys r. reticularia) is on the lists of Virginian species. We have five preserved records to date. It is puzzling to find them here, and we'd like to know just how they got here!

The first record was a carapace of an animal which had died not more than a few weeks before discovery. It was found far from roads or habitation at the edge of a brackish water pond in the Cape Henry, Va., area in what was Princess Anne Co. That was ten years ago this summer.

The date was August 22, 1958. A carapace with a pelvic girdle was found under a tree near the pond. The total length of the carapace was six inches. W. Leslie Burger, VHS Past-President (1959-1963) was with me when the discovery was made.

Five or six years passed before another Chicken Turtle was found. Four new records for Deirochelys were obtained between 1964 and '65.

On May 20, 1964, while on a collecting trip with David Jones, a VHS member, I had an opportunity to collect a large fully-gravid, freshly-killed female on the edge of the highway leading to Virginia Beach. Apparently, this female had left a large pond before starting across the highway. Carapace measured eight inches, total length.

(For description of the Eastern Chicken Turtle see VHS Bulletin No. 57 and Conant Field Guide.)

Around May 15, 1964, Gary Williamson, VHS member, collected a fresh carapace along the edge of the old railroad track by the second largest pond in that area. Carapace measures 7.5 inches in length.

On May 30, 1964, I collected No.4 in the same location as the specimen collected by Gary Williamson. Carapace length 8.25 inches. All these are on hand in Norfolk collection. (At the time of writing.)

The finding of five Deirochelys specimens over three widely separated areas in the Cape Henry, Va., area is certainly interesting. It indicates that this species may be well established in the area. If anyone knows the history concerning Deirochelys in the Cape Henry area, VHS would certainly like to know the details. There is, possibly, a natural isolated colony in the tradition of Great Dismal Swamp. To those having access to the area, please be on the watch! Do not remove any live specimens. Photographs in color of a specimen are necessary to give additional collecting data. Place a ruler in photo foreground.

A live Chicken Turtle was found by David Jones on June 3,1965. It was a young specimen (4 inches lg) and was in a pool a few yards from the area where the previous specimens were found. The specimen was photographed and released by Gary Williamson and Jones shortly after capture, and in the same area.

TURTLES OF VIRGINIA

Above: Black to light brown, rough three well-defined keels; smoother with growth, age.

Below: Small under-shell doesn't cover the throat, legs, or tail. Tail saw-toothed.

Young: Back much rougher than in adult; tail is longer than upper shell (carapace); white spot on marginals.

Size: Min. 1 to 1½ inch hatchlings
Ave. 8 to 12in. (10 to 40 lbs)
Max. 18 inches (60 to 75 lbs)

Neck: Long, serpentine with many wart-like tubercles.

Head: Large, dark; the eyes may be seen from directly above; two barbels on chin

COMMON SNAPPING TURTLE (3)

Above: Light olive-brown to dark brown or black, irregular dark streaks or spots, the large plates do not overlap; shell is long, oval.

Below: Small under-shell, yellowish brown, one hinge; the pectoral plate is square.

Young: High-domed and sharply keeled above; under-shell darker than in adults.

Size: Min. 0.8 inch hatchlings
Ave. 3 to 4 inches, adult
Max. 5½ inches or less.

Neck: Two light stripes each side; barbels on chin and throat.

Head: Two light stripes each side; sometimes uniform black.

STINKPOT (23)

Above: Gray or brown with dark streaks or spots; large plates overlap slightly.

Below: Small under-shell, only one hinge; one gular (see diagram) plate.

Young: Single mid-dorsal keel is prominent; absent in adult.

Size: Min. 1 inch hatchlings
Ave. 3 to 4 inches, adult
Max. 4½ inches.

Neck: Dark stripes on sides; barbels on chin only.

Head: Dark stripes on sides.

STRIPE-NECKED MUSK TURTLE (22)

Above: Olive-brown to near black; smooth shell, no keels.

Below: Plain yellowish-brown, and is double-hinged; slightly to heavily marked with dark brown or black. Pectoral is triangular; Between shells, a broad bridge.

Young: Upper shell (carapace) is dark brown or black with a mid-dorsal keel; rough. Lower shell (plastron) is usually dark in center on seams between plates; the lighter parts are yellow.

Size: Min. 0.9inch hatchlings
Ave. 3 to 4 inches, adult
Max. 5 inches.

Neck: (and soft skin parts) olive or brownish, without marking.

Head: Medium-sized, dark, spotted, mottled, or irregularly streaked with yellow. Lacks well-defined light lines.

EASTERN MUD TURTLE (14)

TURTLES OF VIRGINIA

Above: Dark gray to black, small scattered yellow dots, at least one to a large plate; shell broad, low, no keel.

Below: The under-shell or plastron has no hinge, yellow and black pigmented area.

Young: One spot to each plate; a large pigmented area on under-shell yellow-edged.

Size: Min. 1 inch hatchlings
Ave. 3 to 4 inches
Max. 5 inches.

Neck: May have several small spots of orange or yellow.

Head: Several yellow spots, one or two broken bands of yellow near eye or behind the eyes.

SPOTTED TURTLE (6)

Above: Brown, rough sculptured, each large plate is base for an irregular pyramid rising in concentric ridges; strong relief.

Below: Under-shell is rigid, no hinges; yellow, oblong dark blotches at back edges of large plates or scutes.

Young: Shell broad, low, smoother than in adult; brown or grayish-brown, no orange red on legs; tail longer than upper shell.

Size: Min. 1¼ inch hatchlings
Ave. 6 to 7 inches, adult
Max. 9 inches.

Neck: (and soft parts) conspicuously reddish-orange including legs in adult (only).

Head: Medium sized, dark on top; chin lighter to orange.

WOOD TURTLE (7)

Above: Dark brown to nearly black, no distinctive markings, large plates may have yellowish or reddish centers.

Below: Dark brown to black with light markings.

Young: Rarely observed.

Size: Min. -1 inch hatchlings
Ave. 3 inches, adult
Max. 4¼ inches.

Neck: Distinctive orange blotch on each side just behind head.

Head: Medium-size, dark on top, chin and face lighter.

EXTREMELY RARE, PROTECTED.

BOG TURTLE (8)

Above: Usually dark or light tan, color and pattern variable yellow-orange spots either regularly or irregularly spaced; high-domed shell.

Below: Under-shell completely covers soft parts, one hinge; only turtle that can completely close up.

Young: Shell flatter than adult, central keel high and is lighter in color; mostly plain gray to gray-brown.

Size: Min. 1 to 1¼ inch hatchlings
Ave. 4 to 6 inches, adult
Max. 6½ inches.

Neck: Flecked with yellow-orange. (M) red eyed; (F) brown eyed.

Head: Medium-size, flecked with yellow or orange, or may be dark.

EASTERN BOX TURTLE (24)

TURTLES OF VIRGINIA

Above: Color variable: light brown to uniform black; dark concentric ridges on a light gray or light brown background.

Below: Under-shell oblong, gray-green, orange, or yellowish, with (or more likely without) bold markings.

Young: More brightly patterned than most adults

Size: Min. 1 inch hatchlings
Ave. (F) 6 to 8 inches
(M) 4 to 5½ inches
Max. (F) 8-3/4ths inches.

Neck: Never striped, dark spots on gray or gray-green. The legs and other soft parts are gray or gray-green, too.

Head: Small, dark-spotted, never striped.

(Prefers salt marshes, brackish water.) NORTHERN DIAMOND-BACKED TERRAPIN (16)

Above: Olive-brown to ol.-green, with pattern of fine lines suggesting a map, obscure in larger females; shell moderately low, somewhat keeled, mid-dorsal spines.

Below: Under-shell plain yellowish white; legs olive to brown with light stripes.

Young: Simple pattern on under-shell of dark lines which border seams; dorsal keel prominent.

Size: Min. 1¼ inch hatchlings
Ave. (M) 4 to 6 inches
(F) 7 to 10 inches
Max. (F) 10-3/4ths inches.

Neck: Greenish-brown, dark stripes, yellow spot behind eye.

Head: Broad, in adult female; jaw surfaces broad; smooth crushing surface on roof of mouth. Yellow line and spot behind the eye.

MAP TURTLE (12)

Above: Usually brown, variable; a mid-dorsal keel with suggestion of knobs.

Below: Pattern on under-shell is less pronounced in adult.

Young: Saw-backed, spines black; rear of upper shell toothed; well-developed pattern on under-shell

(Expected in extreme S.W. Va.)

Size: Min. 1¼ inch hatchlings
Ave. (M) 3 to 4 inches
(F) 5 to 8½ inches
Max. (F) 9 in. (M) 4½ in.

Neck: One to three light lines; many stripes on legs.

Head: Square light spot behind eye; one to three lines reach eye.

OUACHITA MAP TURTLE (13)

See: "Imperiled Gift of the Sea" a feature article on the plight of the Green Turtle in the Caribbean - in the NATIONAL GEOGRAPHIC magazine for June 1967. It was written by Dr. Archie Carr and is well illustrated with photographs by Dr. R. E. Schroeder.

Also: Article by Janet Nelson Cole in VIRGINIA WILDLIFE 6/'68

TURTLES OF VIRGINIA

Above: Dull gray, olive, to black; Large plates are in rows-- across back-- side to side; marginals red and black; shell low, unkeeled.

Below: Plain yellow-tan with, or without dark spots. Black and red striped legs.

Young: Same coloration as adult; back moderately keeled.

Size: Min. 1 inch hatchlings
Ave. 4 to 6 inches
Max. 7 inches

Neck: Yellow and dark greenish stripes under chin.

Head: Two bright yellow spots on each side in region of ear.

EASTERN PAINTED TURTLE (4)

Above: Large plates down ridge of back alternate with those of outer rows (diagram).

Below: Dark blotch on central seam of under-shell.

Young: Moderately keeled; this feature is lost in adults.
(Expected in northern and western Va. border counties.)

Size: Min. 1 inch hatchlings
Ave. 4 to 5 inches
Max. 7½ inches

Neck: Yellow and greenish stripes on chin and neck.

Head: Two bright yellow spots on each side in ear region.

MIDLAND PAINTED TURTLE (5)

Above: Brown or olive in overall appearance, but with yellow streaks on back, whorls or circles of brown or black on lighter background. The rear marginals are toothed.

Below: Yellow, round dusky marks on forward plates, bridge and marginals, fade in old. Narrow yellow stripes on front surface of forelegs; yellow "striped pants" as seen from behind.

Size: Min. 1 to 1½ in. hatchlings
Ave. 5 to 8 inches, adult
Max. 10 to 11 inches.

Neck: Dark.

Head: Large yellow patch behind the eye; yellow head stripes prominent in young & females. Lower jaw rounded, or "moon-faced" when seen head-on.

Young: Similar to adult.(S.E.Va.)

YELLOW-BELLIED TURTLE (20)

Above: Olive brown in general appearance with streaks and circles of dark brown or black; rear marginals are saw-toothed.

Below: Yellow, marked with dusky smudges on foreward portion; obscure in adults.

Young: Back green with low keel many dark eye-like spots.
(Expected in S.W. Va., only.)

Size: Min. 1 inch hatchlings
Ave. 5 to 8 inches, adults,
Max. 11 inches.

Neck: Yellow stripes on neck.

Head: Narrow yellow stripe behind eye --"yellow-eared" turtle; jaw round when viewed head-on -- "moon-faced."

CUMBERLAND TURTLE (21)

TURTLES OF VIRGINIA

Above: (F) vertical red line on each of 3 costal (rib) plates, dark background; (M) mottled with reddish brown; red persists in adults; not keeled.

Below: Under-shell usually bordered with red, orange or coral; yellowish with big gray smudges.

Young: Strongly and colorfully-marked; slightly keeled, patterned with yellow on olive or green; under-shell has large dark pattern on coral red ground.

Size: Min. 1 to 1½ inch hatchling
Ave. 8 to 11 inches, adult
Max. 15 to -18 inches.

Neck: (F) striped;(M) dark.

Head: Light arrow at front of head as seen from above -- as in Yellow-bellied and Cumberland Turtles.
Cutting edges of jaws are saw-toothed.

RED-BELLIED TURTLE (19)

Above: Dark brown or olive in appearance with dark streaks, whorls or circles on light to dark brown background; a light "C" on second rib (costal) plate.

Below: Yellow, or sometimes red, under-shell; dark pattern tends to follow seams; 2 dark concentric circles on marginals some touch the bridge between shells.

Size: Min. 1 inch hatchlings
Ave. 9 to 12 inches
Max. 12½ inches.

Neck: Light to dark brown.

Head: Yellowish stripes on light to dark brown.

Young: Seldom seen.

(Expected on Coastal Plain.)

RIVER COOTER (17)

Above: Light to dark brown, net work of light lines; one (or more) vertical light stripe on 2d costal (rib) plate, No "C".

Below: Light yellow under-shell, not greenish, unmarked; dark doughnut-like marks on marginals (underside). Legs light to medium brown with no "striped seat of pants" from rear view.

Size: Min. 1 inch hatchlings
Ave. 9 to 13 inches
Max. 16 inches.

Neck: Light to medium brown.

Head: Light to medium brown with many stripes but these do not unite to form markings characteristic of southern forms (see Conant: p. 65).

FLORIDA COOTER (18)

TURTLES OF VIRGINIA

Above: Olive-green to ol.-brown, covered with net-like design of fine lines; shell longer than wide, widest over hind legs.

Below: Under-shell unmarked, yellowish. Lower marginals yellowish, smudged. Broad yellow stripes on foreleg. "Seat-of-pants" vertically striped seen from behind.

Young: Carapace (back) has slight keel; markings as in adult except that more head stripes are evident. Under shell may have dark figure following seams, or plain.

Size: Min. 1 inch hatchlings
Ave. 4 to 6 inches, adult
Max. 10 inches.

Neck: Extra-long striped neck, yellow and green stripes on olive green background;

Head: Olive-brown, conspicuous but variable light stripes.

(Expected in Great Dismal Swamp; but found in Va. at Cape Henry, see short feature on page two.)

EASTERN CHICKEN TURTLE (9)

Above: Olive-gray to yellowish-brown; (M) dark "eye"like spots at the center back; (F) blotches of brown, or olive brown, of varying size producing camouflage effect; projections on upper surface gives sandpaper feel; no scales or plates, leathery effect.

Below: Uniform yellowish-white. Feet strongly streaked and spotted.

Young: Small dark spots or circular markings on pale yellowish-brown ground color.

Size: Min. 1½ inch hatchlings
Ave. 7 to 15 inches, adult
Max. (F) 17 inches.

Neck: Dark-edged light stripes on long olive-gray neck.

Head: Two separate dark-edged light lines from eye to neck, also along mouth to neck; snorkel-like snout.

(Expected only in extreme southwestern Virginia counties in the Tennessee-Ohio drainage system.)

(25)
EASTERN SPINY SOFTSHELL TURTLE

Above: No scales or plates; 7 prominent lengthwise dorsal ridges; smooth slaty black or dark brown, may have irregular whitish patches.

Below: No scales or plates. Five lengthwise ridges or keels.

Young: Great numbers of small scales which later are shed; tail keeled above.

Size: Min. 3 inch hatchlings
Ave. 50 inches (700 lbs.)
Max. 96 in. (1,600 lbs.)

Head: Dark brown or black, may be yellowish-white on chin.

(Expected only in salt or brackish waters --Chesapeake Bay, ocean.)

ATLANTIC LEATHERBACK (10)

TURTLES OF VIRGINIA

Above: Light or dark brown, sometimes with olive shadings; radiating mottled or wavy dark markings or large dark brown blotches. Only 4 costal (rib) plates, the 1st does not touch nuchal (neck) plate (diagram).

Below: White underneath to light yellow.

Young: Upper shell plates overlap in immature (not in adult); dark brown above, whitish underneath except ends of flippers which are black, edged in white. Mid-dorsal keel, two keels underneath.

Size: Min. 2 inch hatchlings
Ave. 30 to 40 in.(150 lbs.)
Max. 60 inches (850 lbs.)

Head: One pair of prefrontals, i.e. the plates between the eyes; bill looks rounded when seen from above. Head plates are light brown at center and yellowish in spaces between, especially on sides of head giving temporal region a yellow cast.

(A highly edible turtle; name derived from the body fat which is greenish.)

ATLANTIC GREEN TURTLE (2)

Above: Generally brown, the large plates overlap except in very old specimens. Keeled mid-dorsally; Four costal plates: 1st not touching the nuchal plate(diagram).

Below: Yellow under-shell, may have a few black blotches.

Young: Dark brown to black above and below, except raised ridges: one mid-dorsal, 2 ventral; light brown edges.

Size: Min. 1½ to 1-3/4ths inches
Ave. 17 to 22 in.(60 lbs)
Max. 36 inches (280 lbs.)

Head: Two pairs of prefrontal plates between eyes; beak looks pointed from above.

ATLANTIC HAWKSBILL (11)

Above: Reddish-brown elongate shell; low keel not too noticeable in large individuals; 5 or more rib (costal) plates, 1st is in touch with nuchal.

Below: Yellowish, grayish cast.

Young: Light brown, 3 keels above; Dirty white, two keels underneath.

Size: Min. 1½ to 2in.hatchlings
Ave. 28 to 50 in.(300 lbs.)
Max. 84 inches (900 lbs.).

Head: Extremely large, rounded in front, broad across back; 2 pairs of prefrontal plates.

ATLANTIC LOGGERHEAD (1)

Above: Gray, short, chunky; 5 rib (costal) plates, 1st touching nuchal; mid-dorsal keel.

Below: Four plates on bridge between shells; yellow under.

Young: Almost completely black, 3 dorsal, 4 ventral keels.

Size: Min. 1½ inch hatchlings
Ave. 20 to 25 inches, adult
Max. 27½ inches.

Head: Large, two pairs prefrontals.

ATLANTIC RIDLEY (15)

TURTLES: VERSATILE REPTILES

Virginia has 20 different kinds of native turtles which live, and breed, in the ponds, swamps, woodlands and hillsides. Another five species of far-ranging seaturtles come up on the Eastern Shore, and Virginia Beach, and into the Bay.

Since the shell affords protection, and therefore assurance, the slower-moving land turtles are as likely as any to be the first reptile with which man becomes familiar. Historically, they haven't been regarded as highly for their aptitudes as they have for eating purposes. Psychologists tell us that turtles may rank with rats in their ability to learn how to get through a maze.

As they have in all Ages, over the past 200 million years, lowly turtles have adapted well to "the Atomic Age!" Several of the Eastern Painted Turtles are "employed" at the Atomic Energy Commission's Brookhaven National Laboratory on Long Island, N.Y., where they are mobile biological radiation monitors. Thirty turtles are engaged by the Environmental Monitoring Group of the Health Physics Division. As accumulators of low level radioactivity from plants or other food items in the streams around the Lab, they can be caught and their radioactive body burden easily measured in a "whole-body" counter. Following this, they are returned to the stream where they were found. Thus, they help keep track of small, or inadvertent releases of man-made radioactivity.

Turtles are giving blood specimens to science in a study at Oak Ridge National Laboratory, Tenn., conducted by a pathologist from Los Alamos, N.Mex., with AEC support.

The mystery is "what makes turtle red blood cells live so long?" --- The longest survival time for red blood cells from people is about 120 days; for turtles, 500 days! If the reasons for the difference can be determined, it may be possible to prolong the life of man's red blood cells, reducing the need for multiple blood transfusions in some diseases affecting humans.

Another medical study involving turtles has been underway at the biology department of Emory University, Atlanta, Ga. Researchers are trying to expand understanding of a blood clotting condition that physicians call "infarction."

Turtles were chosen for the study because the damage done by blood parasites in turtles produces results similar to conditions in a human being during a heart attack. The study was supported by the National Science Foundation.

There are many excellent opportunities for biology or medical students to make original and useful observations, and to draw any valid conclusions from his study of local species of turtles. Of course, a good general background in science -- especially, advanced and college biology -- would be a prerequisite to more serious work.

TURTLES AND CONSERVATION

Turtles offer excellent subject matter for illustrating conservation principles. The threatened extinction of the giant seaturtle is an instance. The story of the seaturtle that at one time supplied man with tortoise shell is worthy of study and elaboration. It is a good example of how the fate of a species may depend upon the whims of fashion -- or the way in which extinction may be averted when chemistry produces a substitute superior to natural tortoise shell. Did plastics save Hawksbill turtles from extinction ?

E. Laurence Palmer, writing in the January, 1959, Nature Magazine stated: "We may read statements to the effect that all snapping turtles should be removed from ponds on which ducks and valuable species of fish depend, yet, while drawing our conclusions, we are prone to overlook the food value of the turtle we may think should be destroyed. ... Some turtles must eat underwater, while others need not meet this situation. It is easy to assume that, since a snapping turtle can strike viciously with its head, it must feed wholly on animal matter. As a matter of fact such a generalization has recently been brought into question by very careful study of the feeding habits of the turtle, by analysis of the stomach contents, and by other observations. Recognition of this doubt may be useful in teaching the wisdom of reserving judgment until there is adequate data on hand."

"One of the more important aspects in the study of turtles centers not on what we know about common turtles, but on what we do not know, and the opportunity to learn through careful observation."

VIRGINIA WILDLIFE, September 1958 quoted the assistant Chief of the Commission's fish division, saying: "Turtles will not hurt a fish pond. They are scavengers and keep the ponds clean. This fact should encourage people to leave them in their ponds." Although snappers do eat fish, most ponds are overpopulated with small fishes anyway and the few the turtles eat will help keep the high numbers in check. Other pond turtles like the spotted and painted turtles are heavy consumers of vegetation and insects and are of little concern as fish-eaters.

Turtles can safely remain under water for long periods of time. Some remain submerged all winter. In some species, this prolonged submergence is made possible by the thin-walled sacs that serve as "cloacal gills." In many, it is possible because respiration has slowed and there is reduced dependence upon fresh air.

REFERENCES:

Roger Conant, "A FIELD GUIDE TO REPTILES AND AMPHIBIANS" (1958) Houghton Mifflin Co., Boston, Mass.

Archie Carr, "HANDBOOK OF TURTLES" (1952) Cornell University Press, Ithaca, N.Y.

F. J. Schwartz, "MARYLAND TURTLES" (1967) Chesapeake Biological Laboratory, Solomons, Md.

CARE OF TURTLES IN CAPTIVITY

"Good health in a turtle will be promoted by attention to eight basic requirements: calcium, copper, cleanliness, crawl-space, vitamins, food, warmth, and water." If they can't get new calcium from a food source for bone and shell growth, the available calcium is spread among the bones and the shell will become soft in spots and the turtle will die. One way to provide calcium in the diet is to roll all pieces of meat in fish bonemeal. A supply can be bought at the garden store. The two are combined without mess by placing the bite-sized pieces of meat in a plastic Baggie with the meal and kneading until the lime adheres well to the bits.

Turtles that live in water should have small pieces of copper screen wire kept in their water. Copper ions seem to keep fungus infection in check. Fresh water and clean quarters provided with some regularity prevent the development of disease-causing organisms. Most turtles need a place where they can crawl out of the water and allow the shell to dry. Turtles can eat almost everything: canned or fresh fish, earthworms, insects, bits of raw meat, fresh fruit, and leafy greens. Vitamins should be given. One authority suggests ABDEC drops added to the drinking water. One of the most neglected needs is for warmth. In cool weather a device such as a lampshade should be employed to keep the air temperature between 70 and 80°(F.). Almost all water-dwelling animals can be cured of illnesses by a temporary increase in the salt (NaCl) content of the water. Even a fourth of 1 percent salt solution is often sufficient, and the concentration may be raised to 1 percent, safely. A weak solution is desirable at all times whether infections are apparent or not. Respiratory, and other infections are easily controlled in reptiles by use of antibiotics, just as in human beings. The antibiotics may be added to the drinking water, or to the food. Aureomycin, terramycin, and penicillin are known to be safe to use on reptiles.

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Dr. Doris M. Cochran, former curator of the division of reptiles and amphibians, U.S. National Museum (Smithsonian Institution) and Honorary Member of VHS, died of cancer in May. She greatly encouraged all who showed an interest in reptiles and amphibians. Her article in the May, 1952, NAT'L GEOGRAPHIC magazine underlined a personal fondness for turtles. Her frequent encouragement to VHS members and her boundless patience will never be forgotten. In this present "special bulletin" her inspiring enthusiasm is readily acknowledged.

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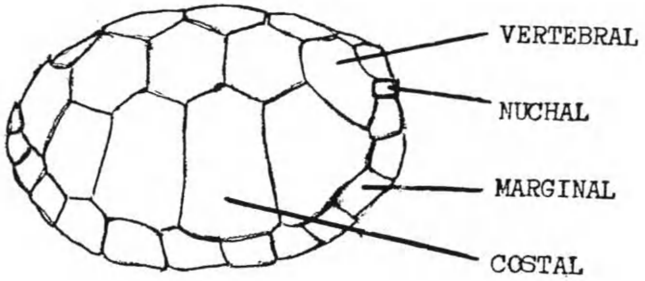
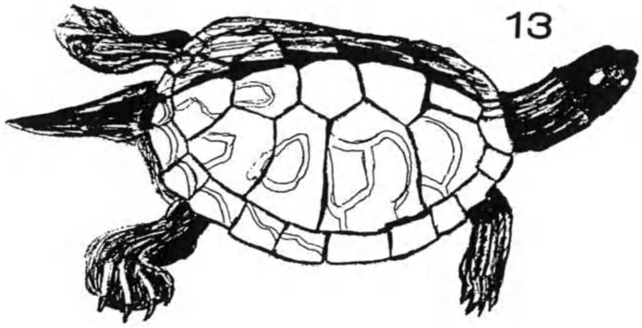
VHS wishes to acknowledge the aid of, and thank, Dr. Frank J. Schwartz, author of "Maryland Turtles" for permission to use illustrations prepared by Mrs. A. J. Mansueti of the Chesapeake Biological Laboratory, Solomons Island, Maryland.

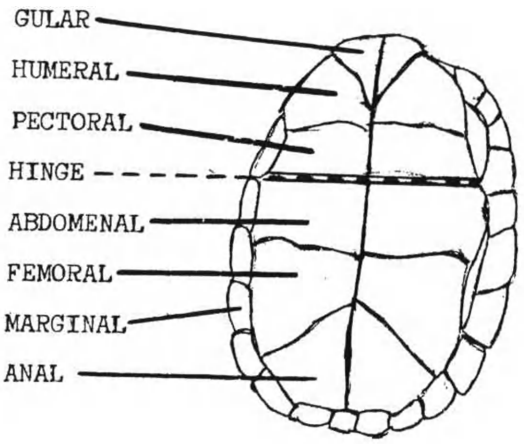
Others who indirectly provided assistance through their publications were: E. Laurence Palmer, Hobart M. Smith, and the VIRGINIA WILDLIFE magazine.

Much background material was drawn from the referenced works of Mr. Roger Conant, Philadelphia, (Pa.) Zoological Gardens, and Prof. Archie Carr. All readers' comments are welcomed.

CARAPACE







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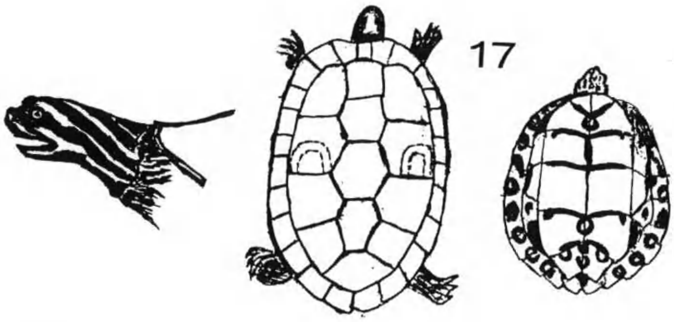

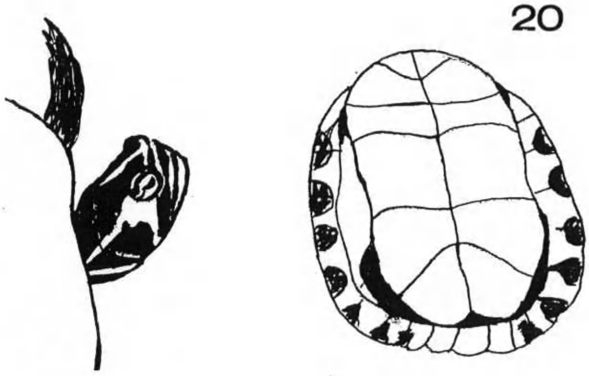

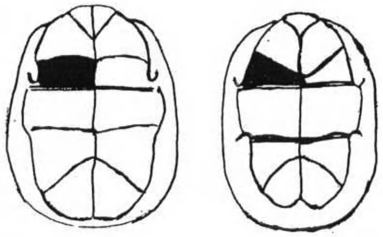

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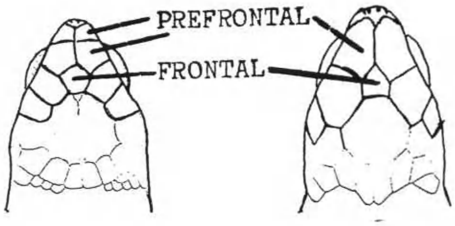

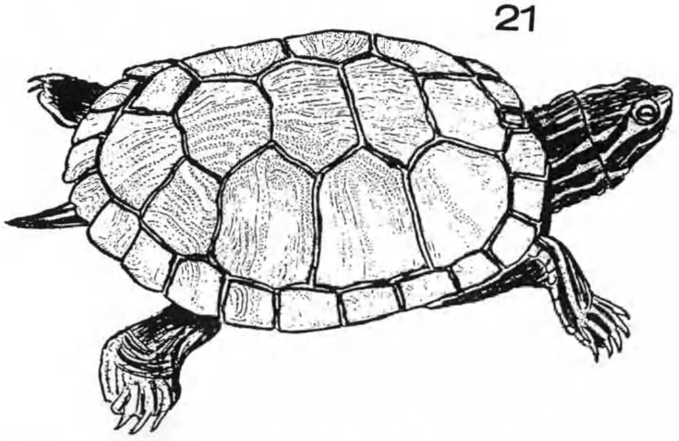

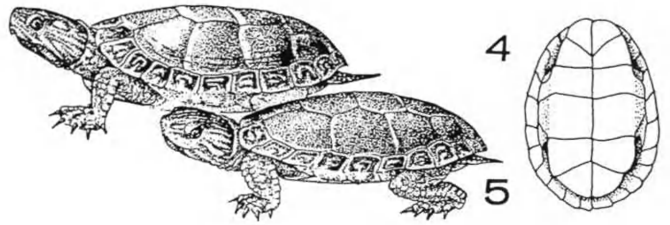
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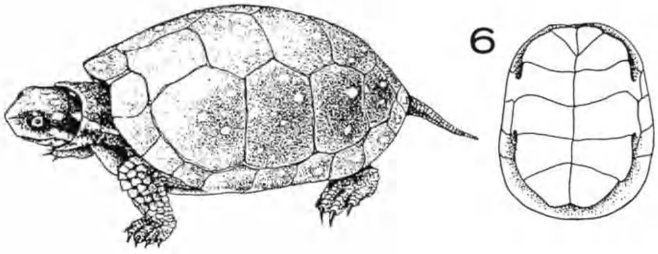
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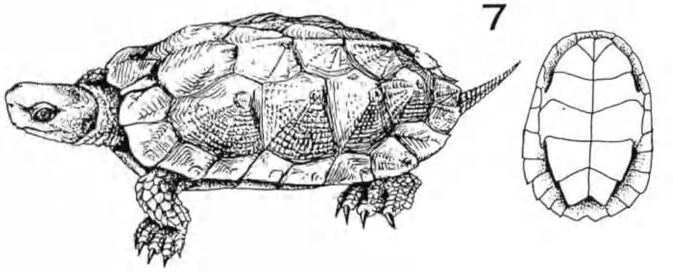
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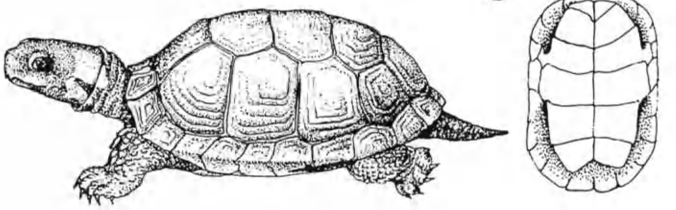
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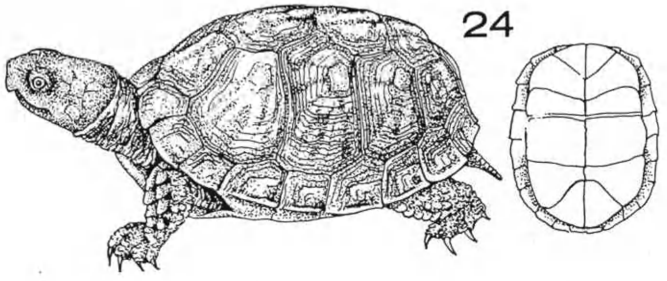
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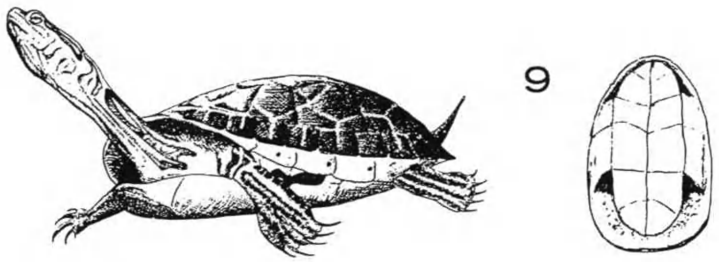
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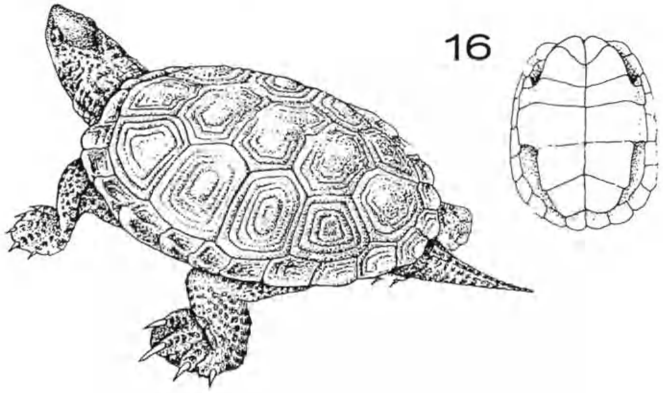
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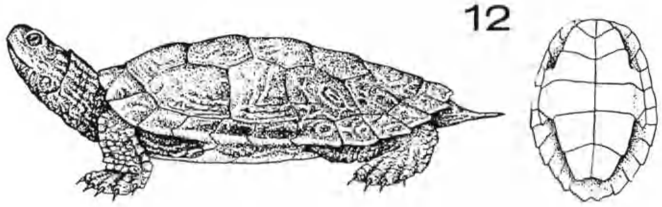
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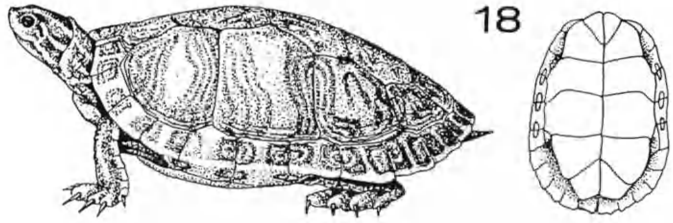
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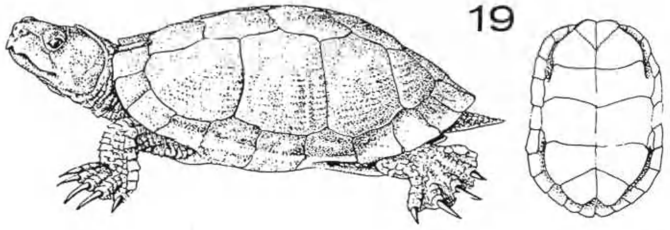
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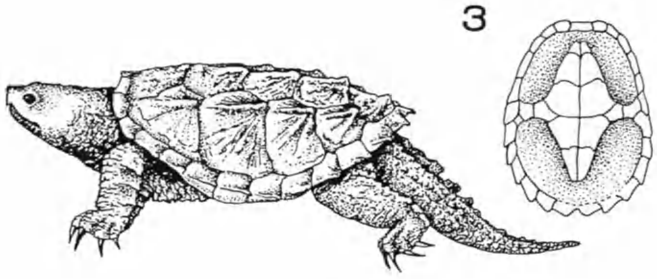
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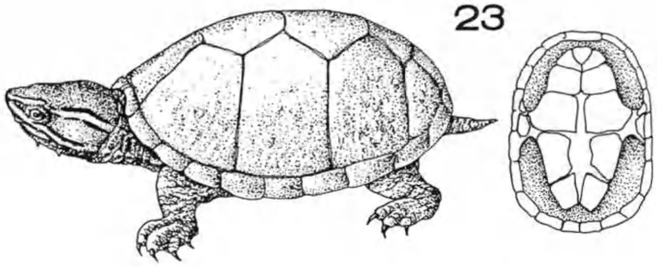
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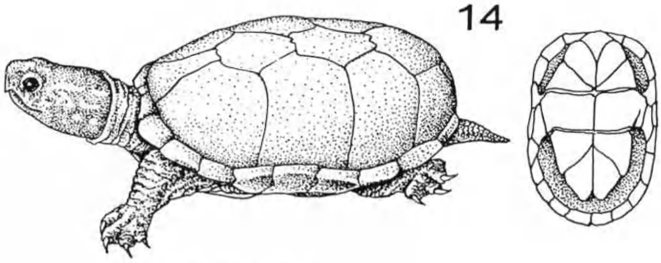
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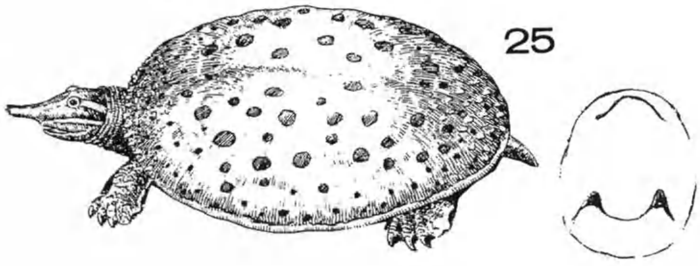
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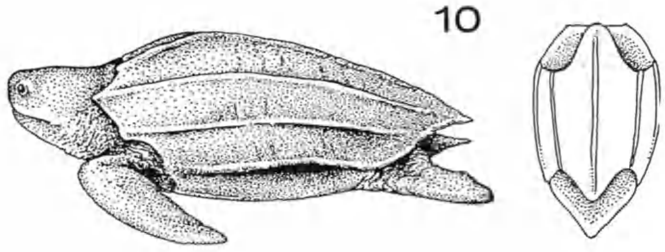
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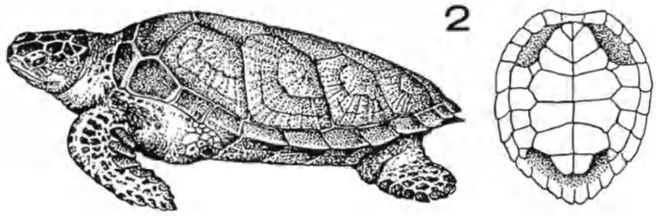
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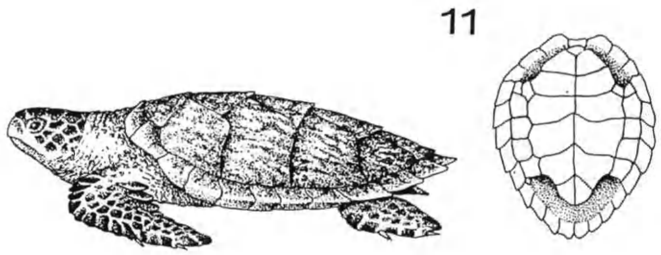
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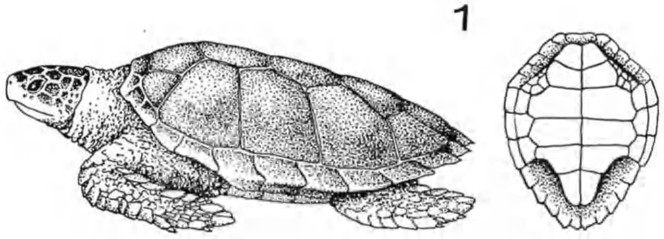
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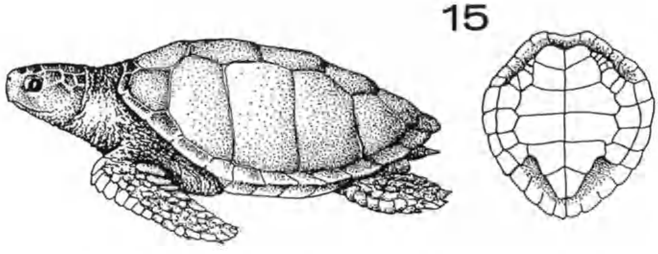
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