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In 1957 Dr. Edward H. Taylor asked me to study and report on a specimen of *Kinosternon*, obtained by him in Costa Rica, that differed from other known species. Description was delayed for want of comparative material. In the three years 1961-63 I collected, prepared, and studied some 700 specimens of the genus *Kinosternon* from Central America. Among these are 13 additional individuals of the species represented by Dr. Taylor's specimen. The species is named and described as follows:

Kinosternon angustipons new species

Holotype.—University of Kansas 43631, adult female, alcoholic; Los Diamantes, Limón Province, Costa Rica; obtained by Edward H. Taylor and John Baker, August 13, 1952; original number 8507.

Paratypes (total of 13).—University of Utah 3756♂, 13 mi. S. San Juan del Norte, Nicaragua *in* Limón Prov., Costa Rica; UU 3757-60,62-64, KU 84882♂♂, UU 3765-66♀♀, .6 mi. NNW Puerto Viejo, Heredia Prov., Costa Rica; UU 3767♀, 2 mi. E and 1¾ mi. S Guabito, Bocas del Toro Province, Panamá and, UU 4189♂, 2 mi. NW Almirante, Bocas del Toro Province, Panamá.

Diagnosis.—A small species of *Kinosternon*, most closely resembling *K. dunni* Schmidt (1947), and having: 1) a flattened, noncarinate carapace; 2) a narrow plastron with anal notch and interlaminal seams that tend to fill with soft tissue in older individuals; 3) a narrow bridge (20% or less of length of carapace); 4) an unstriped head; 5) a maxillary beak that is neither hooked nor notched; 6) clasping organs on posterior limbs of males; and, 7) tip of tail unmodified (neither horn-covered nor clawlike) in both sexes.

Description of species (based upon type series).—Carapace relatively low (highest point on posterior part of fourth central), evenly arched or flat-topped in cross section, oval in dorsal aspect, greatest width usually at level of bridge. No pronounced sculpturing, even in smallest individuals; faint suggestion (creases) of mid-dorsal and dorsolateral keels in small specimens; no trace of dorsal keels in older, larger specimens. Anterior margin of carapace smooth, slightly indented; posterior margin shallowly notched (between postcentrals).

Carapacal scutes imbricated (juxtaposed only in old, worn specimens); first or third central longest and broadest, fifth central shortest and narrowest; centrals 1 to 3 approximately as long as broad, 4th and 5th significantly broader than long. Precentral wedge-shaped, narrowed anteriorly, usually broader than long, shorter than seam between first and second marginals. First central in narrow contact (or not in contact) with M_2. Tenth marginal highest, sloping gradually up from point of contact with M_9, abruptly higher than postcentrals; other marginals flat-topped. Two parallel lateral ridges along margin of carapace, the lower ridge continuous with anterior and posterior free edges of carapace and passing approximately through centers of marginals 4 to 7, the upper ridge continuous with upper borders of marginal scutes and terminating on M_{10}; a distinct marginal bulge between mentioned lateral ridges.

Plastron narrow, its freely movable lobes incompletely closing orifices of shell (extent of closure approximately 55 per cent for anterior lobe, 50 per cent for posterior); bridge narrow (17 to 20 per cent of carapace length), imparting subcruciform appearance to plastra of largest males. Plastral lobes constitute, respectively, approximately 33, 29, and 38 per cent of plastral length; posterior lobe constricted at hinge and having wide, shallow anal notch (more pronounced in males than in females). Interlaminal seams (especially those over hinges and the interfemorals) of older individuals containing varying amounts of soft pale tissue. Axillary and inguinal scutes in contact on bridge (narrowly separated in one old male); axillary scute narrowly in contact with M_4 and M_6; inguinal scute in broad contact with M_6 and M_7 (forming narrow contact with M_8 in two specimens). Plastral scutes, in order of length—abdominal, anal, humeral, femoral, gular, pectoral.

Head slightly broadened; snout wide and blunt in dorsal aspect as well as profile; maxillary sheath flat or slightly concave in premaxillary region, *neither hooked nor notched.* Tip of mandibular sheath blunt. Inner crushing surfaces of jaws weakly developed and chiefly smooth. Tomial edges of both sheaths nearly straight in profile. Snout, in general, evenly tapered, lacking pinched appearance characteristic of most other species of *Kinosternon.* Top of head evenly rounded in anterior view, lacking raised brows. Mature males having bosslike enlargement of snout in prefrontal region. Dorsal head shield present but indistinct, blending gradually with softer skin in temporal region.

Internal choanae broadly oval (approximately twice as long as broad); choanal flaps bearing a single papilla on anterior half of flap; free edge of flap (when closed) longitudinally bisecting choanal opening and papilla extending up to one half of remaining distance from edge of flap to medial border of opening. External narial openings directed anteriorly, situated just below tip of snout, round in cross section; floor of each narial passage having distinct, blunt, longitudinal ridge or papilla (clearly visible as a bulge just inside opening and slightly lateral to midventral floor of passage).

A linear series (usually three to six) of small barbels on each side of throat from mandibular symphysis to end of hyoid bar (and following course of that element), concentrated chiefly in triangular area bounded by mandibular rami; usually two or three smaller barbels on or near midline just posterior to symphysis; gular barbels variable in size but never so large as in *K. leucostomum,* and never consisting of enlarged mental pair with smaller ones behind. Skin of neck studded with distinct papillae having rounded white tips; papillae arranged, more or less regularly, in 14 to 16 longitudinal rows. Papillae numerous and distinct also on posterior surfaces of limbs and on tail (especially in perianal region). Hands and feet fully webbed, free edges of webs strongly fimbriated; antebrachium having three falciform scales on anterior surface.

Discrete, apposed patches of specialized scales (clasping organs) well developed on posterior thighs and legs of males; individual scales in each patch spadelike (not "tuberculate," not pointed); spadelike scales angled dorsally at approximately 45 degrees.

Tail of mature males elongate (equal to or longer than posterior plastral lobe), heavy at base, prehensile, and having blunt unmodified tip (not horn-covered, not clawlike). Tail of females not or barely extending to posterior margin of carapace.

Coloration.—The following descriptions are based upon live adults, viewed in clear water with a beam of incandescent light. Colors of live specimens are not significantly different from those which have been fixed and preserved in ethyl alcohol (no formalin used).

In general the colors of both sexes are drab and neutral. Adjacent pale and dark colors are never sharply delimited but grade gradually into one another. The pale snout, pale upper eyelids, and dark eye stand out clearly in lateral or dorsolateral views of the head and an observer's attention is drawn to them at first glance. This is not so in *K. leucostomum* in which the upper eyelids are either not pale or are joined in a continuously pale or mottled field with the frontal region and snout.

Female (UU 3767)

Iris brown, flecked with golden yellow, the combination appearing to be uniform dark brown except in bright light. Soft skin around nostrils cream; upper eyelids grayish cream; horny sheaths of jaws yellowish cream, grading into pale brown, the darker color being near junction of skin with horn. Ground color of limbs, tail, and dorsal part of neck pale gray to brownish gray, slate in darkest areas. Inguinal pockets grayish cream. Ventral surface of neck (except for a small gray area in front of plastron) yellowish cream, suffused with pink on gular region; a short, dull brown, indistinct stripe extending from mandibular symphysis (not on horny sheath) onto gular region. Top of head dark neutral brown with slight purplish cast, head shield slightly darker than softer skin behind it; side of head tannish above, grading gradually into paler color of throat; palest area on side of head over tympanum, same color as horny sheaths; a few indistinct, irregular, pale brown marks on side of head, chiefly near corner of mouth, below tympanum, and between tympanum and orbit.

Plastron dark golden yellow; interlaminal seams narrowly edged with dark brown; soft skin of interlaminal seams (where present) gray, same color as limbs. Undersurfaces of marginals slightly darker than plastron, pale color extending up to lower of two lateral marginal ridges. Carapace dark brown, having indistinct paler brownish areas near centers of scutes.

Male (UU 3757)

Iris somewhat paler than in female, having a pale reddish cast but consisting of brown and golden flecks (iris not distinct from pupil except in bright light). Jaw sheaths having fine, vertical, pale brown stripes. Ground color of plastron pale neutral yellow, much paler than in female.

Osteology.—Of Central American kinosternids, the skeleton of *Kinosternon leucostomum* bears the closest resemblance to *K. angustipons.* The following description is based upon two complete adult skeletons (UU 3760 ♂, UU 3766 ♀) and an adult shell (UU 4189 ♂) of *angustipons;* where skeletal characteristics are regarded as differing significantly from those of eight adult specimens of *leucostomum* (4 males and 4 females), the characteristics of *leucostomum* are given in brackets. In general, no significant differences were observed in the appendicular skeletons of the two species.

Skull solidly built, greatest width 65 to 66 per cent of total length, height 71 to 73 per cent of width; supraoccipital process relatively short, eight per cent of total length of skull [13 to 17 per cent in *leucostomum*]. Orbit relatively small and nearly circular, having substantial overhang of bone above; vertical diameter as a percentage of least interorbital breadth, 56 (♂) to 62 (♀) [orbit larger, relatively higher due to deficiency in overhang of bone above, vertical diameter 58 to 83 per cent (♂ ♂) and 68 to 74 per cent (♀ ♀) of least interorbital breadth]. Snout tapering anteriorly from base of postorbital bar [from point above mid-orbit]; top of skull (anterior aspect) more or less evenly rounded [more nearly flat-topped], dorsal orbital rim not at all jutting or browlike in appearance [distinctly jutting and browlike, albeit smaller]. Stapediotemporal foramen indistinct [distinct]. Temporal arch weakly emarginate below; quadratojugal comprising nearly one-half of temporal arch, jugal excluded from upper free edge of arch [jugal entering upper free edge]; crushing surfaces of maxillae poorly defined, not concave, sloping dorsomedially, especially weak in premaxillary region [concave; inner border sharp, distinct and continuous across premaxillary region]; anteroventralmost part of vomer greatly expanded, this expansion, the vomeropremaxillary articulation, and incisive foramina visible in ventral exposure [not so expanded, and structures mentioned excluded from ventral view by posterior premaxillary ridge]; maxillae widely separated anteriorly [in contact or closely approximated]; maxillary beak weakly or not at all developed; ventral part of snout lacking indented or "pinched" appearance in ventral view; profile of maxillary cutting edge forming nearly straight line [beak well developed; snout bilaterally

indented, having "pinched" appearance; profile of maxillary cutting edge recurvate]. Angular and coronoid bones of mandible not or but scarcely visible in direct lateral view; angular separating surangular and prearticular ventrally.

Cervical vertebrae typically kinosternid, second opisthocoelous, third biconvex, and remaining five procoelous; of these, sixth and seventh doubled posteriorly, seventh and eighth doubled anteriorly.

Phalangeal formula 2-3-3-3-3 on hand and foot (this assumes that metatarsal V is combined with a tarsal to form a single "hooked" element).

Primary sacral ribs expanded nearly to width of ilial blade at sacroiliac joint, narrow at distal articulation; secondary sacral ribs not at all expanded.

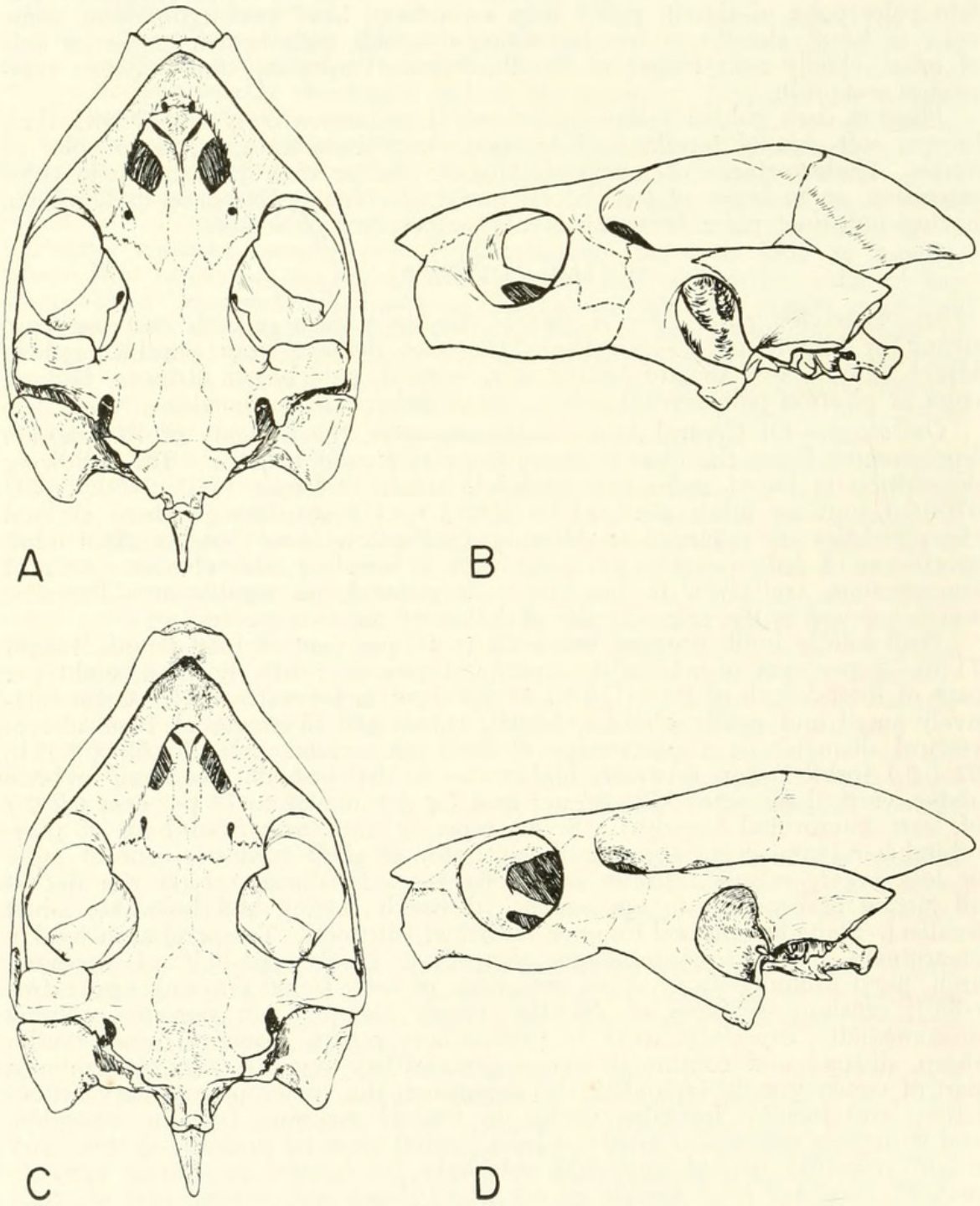
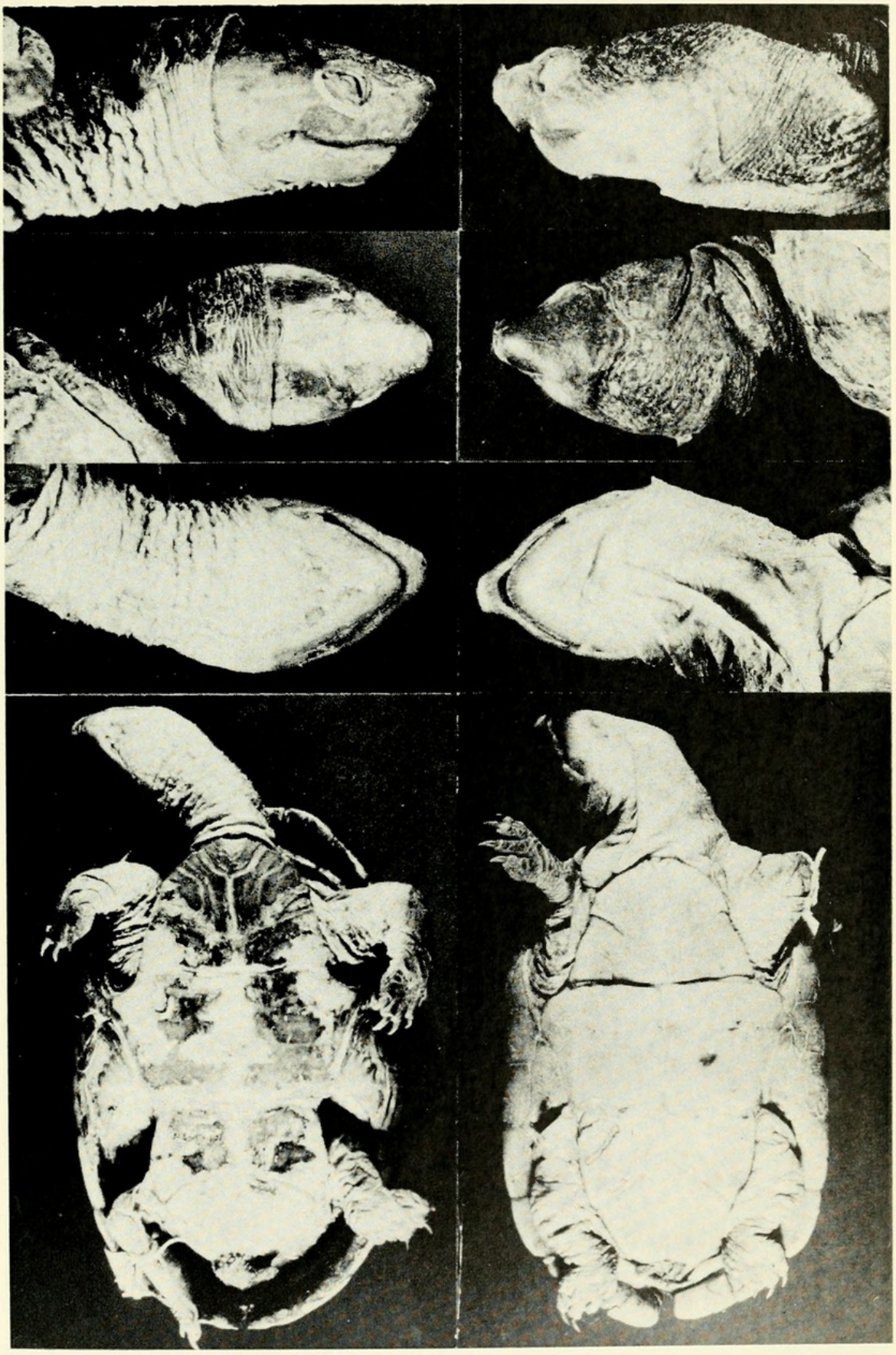
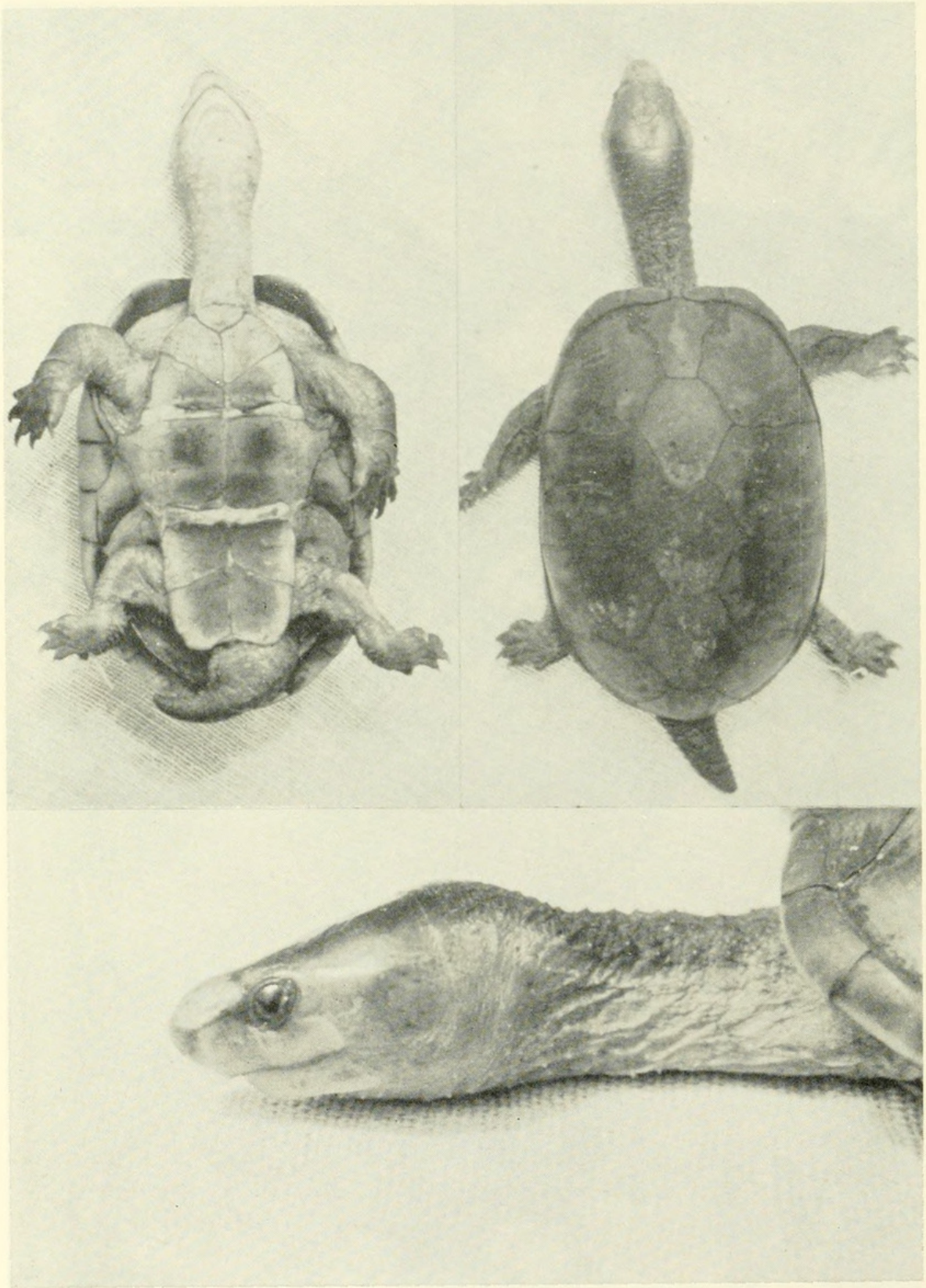


FIG. 1. A and B, Ventral and lateral views of skull, *Kinosternon angustipons*, paratype (UU 3766 ♀) × 2; C and D, skull of *K. leucostomum* (UU 4233 ♀, Gamboa, Canal Zone) × 2.

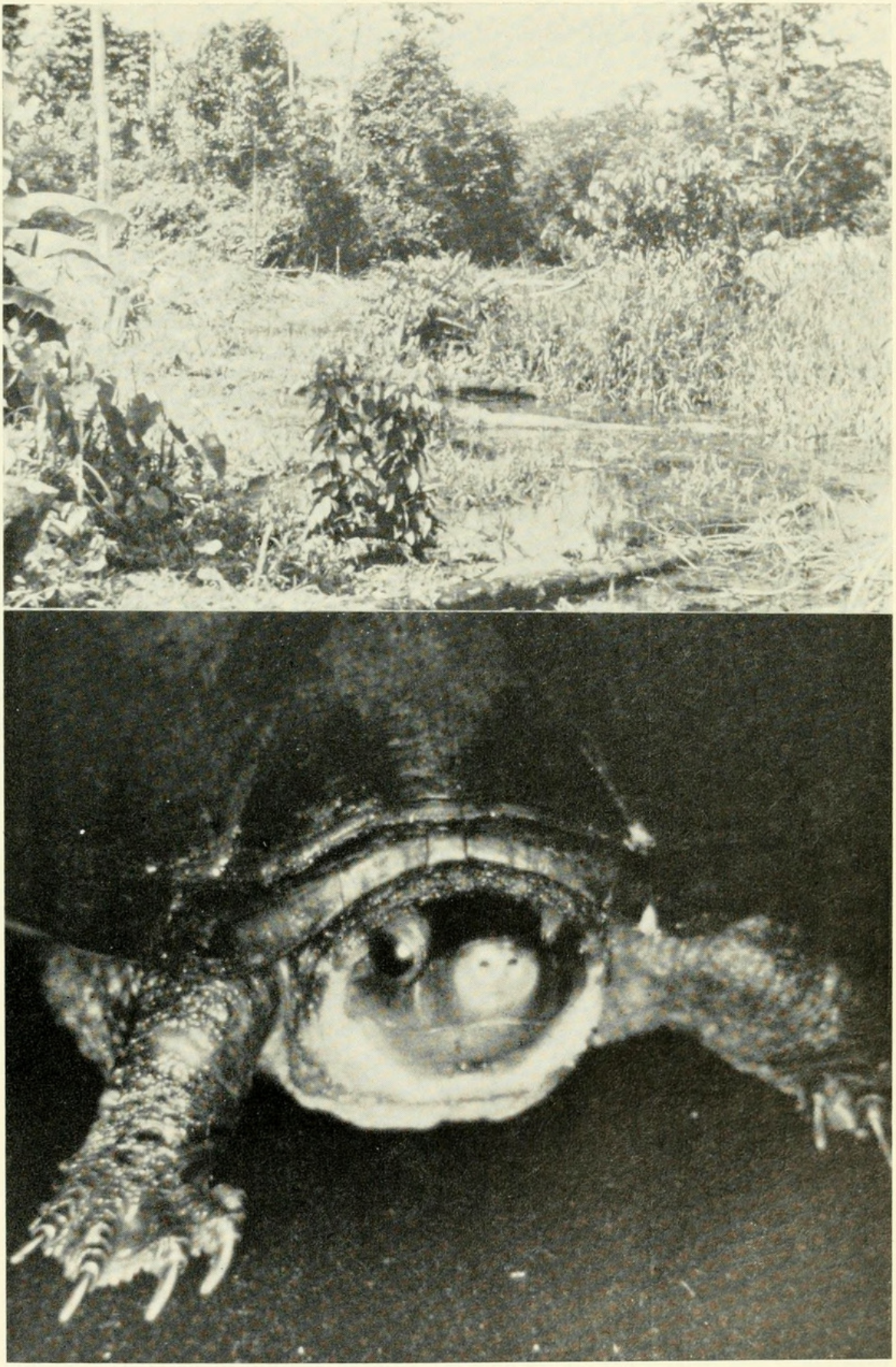
PLATE 26



Comparison of holotype, *Kinosternon angustipons* (left column) and paratype (CNHM 42803 ♀), *K. dunni* (right column); heads × .9; plastral views × .5 and .6, respectively.



Old male of *K. angustipons* (UU 3756), freshly killed; dorsal and ventral views × ½; head slightly larger than actual size; all photographs from color transparencies.



Top. Habitat of *K. angustipons*, .6 Mi. NNW Puerto Viejo, Heredia, Costa Rica, 22 July 1961. Nine specimens were obtained from small pool in foreground. *Bottom.* Anterior view of live female (UU 3767) showing pale snout and eyelids and unhooked beak, × 1½. All photographs from color transparencies.