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VOLUME 106, NUMBER 4

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PEARL ISLANDS, PANAMÁ

BY

DORIS M. COCHRAN

Associate Curator, Division of Reptiles and
Batrachians, U. S. National Museum



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In February 1944 an expedition to the Pearl Islands in the Gulf of Panamá was made by Dr. Alexander Wetmore, Secretary of the Smithsonian Institution, accompanied by Dr. J. P. E. Morrison, Assistant Curator of Mollusks of the United States National Museum. Natural history collections in all groups were begun, and after Dr. Wetmore's return to the United States in March, Dr. Morrison continued the collecting until November. Nearly 350 reptiles and amphibians were obtained, most of them coming from San José Island, the remainder from Pedro González Island. Dr. Wetmore's paper on the birds discusses fully the topography of these islands and their relationship to the neighboring coasts of Panamá.

Dr. Emmett R. Dunn, who has amassed many data on the distribution of Central American reptiles and amphibians, has very kindly given me information on other collections made in the Pearl Islands.

Several species in the Wetmore-Morrison collection apparently constitute new records for the Pearl Islands, according to Dr. Dunn's notes. These are *Eupemphix pustulosus*, *Anolis pentaprion*, *Norops auratus*, *Polychrus gutturosus gutturosus*, and *Crocodylus acutus*.

The species known from the Pearl Islands but not represented in the 1944 collection are *Caccilia ochrocephala* (Cope) (= *C. saboga* Barbour)¹ from Saboga and San Miguel² Islands; *Leptodactylus bolivianus* Boulenger (= *L. insularum* Barbour) from San Miguel and Saboga; *Liotyphlops albirostris* (Peters) from San José; *Chironius fuscus* (Linnaeus) from Saboga and San Miguel; *Leptophis occidentalis occidentalis* (Günther) from San Miguel; *Imantodes cenchoa* (Linnaeus) from San Miguel; *Tantilla ruficeps* (Cope) from Saboga.

ELEUTHERODACTYLUS FITZINGERI (Schmidt)

Forty-six examples of this species, apparently the commonest frog on San José Island, were collected there (U.S.N.M. Nos. 120356-

¹ Barbour, Thomas, Vertebrata from the Savannah of Panama; Reptilia and Amphibia. Bull. Mus. Comp. Zool. vol. 46, No. 12, pp. 224-229, 1906.

² San Miguel Island is also known as El Rey.

120401). The smallest individual measured 11 mm. in length. The species ranges over the entire island. None were taken on Pedro González Island, but it was reported from San Miguel Island by Barbour (1906) as *Hylodes brocchi* (Bocourt); these specimens were subsequently examined by Dunn.

EUEMPHIX PUSTULOSUS (Cope)

On San José, 14 adult specimens were collected (U.S.N.M. Nos. 120402-120406, 120408-120416), while a mass of eggs laid in a froth (U.S.N.M. No. 120407), attributed to this species, was found on May 30, 1944, in a temporary pool in a dry stream bed. On Pedro González, a batch of tadpoles just emerging from the frog froth (U.S.N.M. No. 120689) were found on May 18, 1944, also in a dry stream bed among leaves, on the north drainage between Cocal and San Cristobal. This record is new to the islands, according to Dunn.

BUFO MARINUS (Linnaeus)

An adult (U.S.N.M. No. 120690) was taken on a trail in the east-central part of Pedro González Island on June 8, 1944. Some tadpoles (U.S.N.M. No. 120691) came from a stream southwest of San Cristobal village, also on Pedro González, on the same date. This species does not occur on San José, as Dr. Morrison failed to find it in 8 months of intensive collecting. It was reported from San Miguel Island by Barbour in 1906.

THECADACTYLUS RAPICAUDUS (Houttuyn)

This gecko occurs in considerable numbers on San José, as 51 were taken between February and September, 1944, (U.S.N.M. Nos. 120417-120467), of which 42 were caught in a single day, August 22, above the road crossing on the Island. It was reported from Saboga and San Miguel by Barbour in 1906; Dunn has subsequently examined these specimens.

SPHAERODACTYLUS LINEOLATUS (Lichtenstein)

Forty-one specimens of this striped orange-tailed gecko, also fairly common on San José, were collected (U.S.N.M. Nos. 120468-120508). It was recorded from San Miguel Island by Barbour in 1906, and specimens from Saboga were seen by Dunn.

GONATODES FUSCUS (Hallowell)

A single example of this black gecko with a brown head (U.S.N.M. No. 120692) was taken from a tree on the south side of Cerro

Cristobal, Pedro González Island, on May 18, 1944. Dr. Morrison did not find it on San José. The examples of *caudiscutatus* recorded by Barbour from San Miguel and Saboga belong to this species, according to Dunn.

CTENOSAURA SIMILIS (Gray)

U.S.N.M. Nos. 120509-120520 are from San José Island. The species, doubtfully reported as *C. completa* from San Miguel Island by Barbour in 1906, was since verified by Dunn.

IGUANA IGUANA IGUANA (Linnaeus)

Twelve specimens (U.S.N.M. Nos. 120521-120532) were taken on San José. The largest measured 5 feet in length. A female contained 22 eggs ready to lay. None of the adults had any indications of tubercles on the snout; in only one from that region were the scales slightly convex. The species was recorded from Saboga in 1906 by Barbour as *Iguana tuberculata*.

BASILISCUS BASILISCUS (Linnaeus)

From San José came 32 specimens (U.S.N.M. Nos. 120533-120564), and from Pedro González 2 more (U.S.N.M. Nos. 120693-120694). We have one other example (U.S.N.M. No. 102747), from San José Island, collected by Gerrit S. Miller, Jr., and Charles L. Wheeler on March 16, 1937.

POLYCHRUS GUTTUROSUS GUTTUROSUS (Berthold)

A young specimen (U.S.N.M. No. 120565) was brought into camp on San José on May 22, 1944. It is said by Dunn to be a new record for the islands.

NOROPS AURATUS (Daudin)

Six specimens very handsomely colored (U.S.N.M. Nos. 120566-120571) were taken on San José, in the Llanos area. The three males have the gular fan scales white, the interstitial skin being dark blue. This is a new record for the islands, according to Dunn.

ANOLIS PENTAPRION (Cope)

Twelve examples from San José (U.S.N.M. Nos. 120572-120583) comprise a new record for the islands also. The gular fan scales are pinkish-vinaceous to salmon, with the skin between dragon's-blood red to madder brown.

ANOLIS TROPIDOGASTER Hallowell

Fairly common on San José, where 28 specimens were taken (U.S.N.M. Nos. 120584-120610, 120701), this species likewise occurs on Pedro González, where two examples (U.S.N.M. Nos. 120695-120596) were caught on a log along a stream west of Cocal on March 9, 1944. We also have two examples from Trapiche Island (U.S.N.M. Nos. 102748-102749) collected by Gerrit S. Miller, Jr., and Charles L. Wheeler on March 14, 1937. It has been recorded from San Miguel and Saboga by Barbour in 1906 (as *A. sallaci*), and these specimens have been redetermined by Dunn. The gular fan scales in males vary from white or cream to gamboge yellow, with the skin pale olive to gray.

AMEIVA AMEIVA PRAESIGNIS (Baird and Girard)

The "borriguero," so-called by the Panamanians, occupies the Llanos area on San José, where 13 specimens (U.S.N.M. Nos. 120611-120623) were taken.

MABUYA MABOUYA MABOUYA (Lacépède)

Seven examples (U.S.N.M. Nos. 120624-120630) from San José were found mostly among dry leaves in the sunny parts of trails. Dr. Dunn has seen specimens from San Miguel. The supranasals are in contact in all the San José specimens although barely so in two of them. The prefrontals are separated in six and barely in contact in one. The parietals are separated in six and barely in contact in one. There is a single pair of nuchals in all specimens. Four supraoculars occur in all the lizards, although in three individuals the second supraocular is very large at the expense of the first, which is greatly reduced in size. The sixth supralabial is below the eye in most instances; in one individual the fifth is subocular on both sides of the head; in two others the fifth is subocular on one side, the sixth on the other side. Scales around the body seem to number between 30 and 32, and from chin to vent 57 to 63, but these counts are not too valid, as the scale sequence is not very regular. The toes of the adpressed hind leg reach to the base of the fingers or to the wrist in all but one specimen. The preanals are scarcely enlarged in any of these lizards. The color pattern is much alike in all, consisting of a brilliant white lateral line bordered above by a wider black one, the back being uniform olive. The largest adult has the white line slightly invaded by dark pigment.

The above variations fall well within the limits marked by Dunn for Central American specimens in his "Notes on American

Mabuyas" (Proc. Acad. Nat. Sci. Philadelphia, vol. 87, pp. 540-543, 1935).

CONSTRUCTOR CONSTRUCTOR SABOGAE (Barbour)

Six young and half-grown specimens of this boa, originally described from Saboga Island, were taken on San José. Many large specimens were seen by Dr. Wetmore and Dr. Morrison on the island. The scale formulae are as follows:

U.S.N.M. No.	Scale rows	Ventrals	Subcaudals	Labials	Dorsal and caudal spots
120631	74	246	68	21-19	23-6
120632	73	250	57	21-20	20-5
120633	75	249	66	20-21	22-6
120634	74	249	54	20-20	23-5
120635	73	243	57	19-20	23-6
120702	75	240	66	20-19	21-5

The largest specimen, No. 120631, has a head and body length of about 890 mm., the tail being 115 mm. While the dark cross marking on top of the head is not perfect in any of these specimens, it is indicated in all of them, although the center is frequently lacking. The tail spots are vinaceous-rufous to cinnamon, while the tail is salmon-buff to vinaceous-rufous below.

DRYMARCHON CORAIS MELANURUS (Duméril and Bibron)

Four specimens (U.S.N.M. Nos. 120636-120639) were collected on San José. Dunn has seen this species from San Miguel Island also. The scale formulae of the San José specimens follow:

U.S.N.M. No.	Scale rows	Ventrals	Subcaudals	Labials	Oculars	Temporals
120636	17	203	65 +	8	1 + 2	* 1 + 2
120637	19	203	73	8	1 + 2	* 1 + 2
120638 juv.	17	207	82	8	1 + 2	2 + 2
120639 juv.	17	204	76	8	1 + 2	2 + 2

* Partly divided on both sides.

DRYADOPHIS MELANOLOMUS ALTERNATUS (Bocourt)

Eight examples (U.S.N.M. Nos. 120640-120647) were taken on San José, and one (U.S.N.M. 120697) on Pedro González. Dunn has also seen examples from Saboga and San Miguel. The San José specimens were forest green in life, with paler underparts, but the Pedro González specimen was decidedly reddish. In alcohol this specimen is olive above with a pale stripe along the 4th and 5th scale rows; ventral surface deep salmon posteriorly, lightening to

pinkish buff on anterior half of body. Chin and lower part of head pale olive buff.

The scale count on all these specimens is as follows:

U.S.N.M. No.	Scale rows	Ventrals	Sub-caudals	Labials	Oculars	Temporals
120640 juv.	17	181	110	9-10	1 + 2	2 + 2
120641	17	193	105	9	1 + 2	2 + 2
120642	17	188	69+	9	1 + 2	2 + 2
120643	17	183	91+tip	9	1 + 2/1	1/2 + 2
120644	17	183	88	9	1 + 2	2 + 2/3
120645 juv.	17	182	115	9	1 + 2	2 + 2
120646 juv.	17	191	75+	8-9	1 + 2	2 + 2
120647	17	194	94	9	1 + 2	2 + 2
120697	17	194	46+	9	1 + 2	1 + 2

Dr. L. C. Stuart discusses the status of this form in his "Studies of Neotropical Colubrinae, VIII. A revision of the genus *Dryadophis* Stuart, 1939" (Misc. Publ. Mus. Zool. Univ. Michigan No. 49, pp. 81-86, 1941).

SPILOTES PULLATUS PULLATUS (Linnaeus)

From San José six handsome specimens were taken (U.S.N.M. Nos. 120648-120653), the first three of which measured 7 ft. 0 in., 8 ft. 3 in., and 8 ft. 4 in. respectively. From Pedro González one specimen was received (U.S.N.M. No. 120698). Two were recorded from San Miguel as *Spilotes salvinii* by Barbour in 1906.

The scale counts are as follows:

U.S.N.M. No.	Scale rows	Ventrals	Sub-caudals	Labials	Oculars	Temporals
120648	16	216	100 +	*7	1 + 2	1 + 1
120649	16	217	105 +	7	1 + 2	1 + 1
120650	16	220	94 +	8-7	1 + 2	1 + 1
120651 juv.	16	223	116	7	1 + 2	1 + 1
120652	16	221	96 +	7	1 + 1	1 + 1
120653	16	221	97 +	7	1 + 2	1 + 1
120698	16	224	97 +	7	1 + 2	1 + 1

* The fifth labial has its anterior part divided off as a separate small scale in every instance, so that it might actually have been counted as a labial.

ENULIUS FLAVITORQUES (Cope)

Three examples (U.S.N.M. Nos. 120654-120656) are from San José. Dunn has seen it from Pedro González.

U.S.N.M. No.	Scale rows	Ventrals	Sub-caudals	Labials	Oculars	Temporals
120654	17	196	23 +	7	0 + 2	1 + 2
120655 juv.	17	183	111	7	0 + 2	1 + 2
120656	17	196	96	7	0 + 2	1 + 2

All these have an uninterrupted white collar.

OXYBELIS AENEUS (Wagler)

Nineteen specimens were brought back from San José (U.S.N.M. Nos. 120657-120675) and one from Pedro González (U.S.N.M. No. 120699). This snake was recorded as *O. acuminatus* by Barbour in 1906 from Saboga and San Miguel Islands. Dunn has examined these specimens also.

One of the snakes, a female (U.S.N.M. No. 120665), contained four cylindrical eggs nearly ready to lay when captured on July 18, 1944.

All these specimens have 17 scale rows, a divided anal, and temporals 1+2. There is a single postocular in one specimen, otherwise all have oculars 1+2. Counting each side of the head separately, 8 upper labials occur in 22 instances, 9 in 16 instances, and 10 in 2 instances. The ventrals are remarkably uniform, varying only between 180 and 190 in the 20 snakes at hand. The highest subcaudal count is 180, but it is hard to say what the lowest is, because of the almost perfect reproduction of the tail tip after an injury.

LEPTODEIRA RHOMBIFERA Günther

Three examples were collected on San José Island. It was recorded from San Miguel in 1906 by Barbour as *L. personata*; the specimen has been re-examined by Dunn.

U.S.N.M. No.	Scale rows	Ventrals	Sub-caudals	Labials	Oculars	Temporals
120676	23	172	73	8-9	1+2	1+2
120677	23	171	75	9-8	1+2	1+2
120678	23	172	71	9-8	1+2	1+2

PELAMYDRUS PLATURUS (Linnaeus)

Six specimens were taken on the beach of San José Island (U.S.N.M. Nos. 120678-120684). Barbour has reported it from San Miguel and Saboga.

MICRURUS NIGROCINCTUS NIGROCINCTUS (Girard)

A single specimen (U.S.N.M. No. 120685) was obtained on San José. This snake has 15 scale rows, 205 ventrals, a divided anal, 45 subcaudals; 7 upper labials, 1 preocular and 2 postoculars, temporals 1+2. There are 17 black rings on the body and 6 on the tail. The supra-anal scales are heavily tuberculated. The "*Elaps fitsingeri*" listed from San Miguel Island in Barbour's 1906 paper are in reality *nigrocinctus*.

CROCODYLUS ACUTUS Cuvier

Three young specimens (U.S.N.M. Nos. 120686-120688) were collected on San José Island. The first two, just hatched, were taken May 22, 1944. The third, measuring 2 ft. 9 in., was shot July 20, 1944. Dr. Morrison reports having seen the tracks of several much larger individuals on the beaches of San José. This constitutes a new record for the Pearl Islands, according to Dunn.