

CONTRIBUTION TO THE STUDY OF
AQUATIC BEETLES (COLEOPTERA)

12. ON A COLLECTION OF DYTISCIDAE FROM
GUJARAT WITH DESCRIPTION OF A NEW SPECIES

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(With 1 Text-figure)

INTRODUCTION

The Gujarat State lies in the south-west corner of India, and the area selected for making collections is the region known as Saurashtra or Kathiawar. The collections were made at different places in three districts *viz.*, Junagadh, Jamnagar and Surenḍranagar.

Hitherto only a single species of Dytiscidae was known from Junagadh, Gujarat. The present collection comprises 22 species spread over 14 genera. There is one new species in this collection. Twentyone species are being recorded from this area for the first time.

It was interesting to collect the larva of *Sandracottus dejeani* Aube, which has been described separately (Vazirani, 1971).

Keys to genera and species of Dytiscidae, known from India, are available in my papers 1965, 1969, a, b, 1970 and in press).

This list is not considered exhaustive as only 3 districts could be surveyed in a short period of less than 4 weeks. It is considered desirable to publish the present list, since it is very difficult to say when it will be possible to visit other districts. Some diagnostic characters are also provided for each species, to facilitate identification by those who may be interested in preliminary identification in the field.

The fauna of Gujarat is compared with that of the neighbouring states of Rajasthan in the north and Maharashtra in the south.

LIST OF SPECIES

Family DYTISCIDAE

Subfamily NOTERINAE

1. *Hydrocoptus subvittulus* Aube
2. *Canthydrus laetabilis* (Walker)

Subfamily LACCOPHILINAE

3. *Laccophilus chinensis inefficiens* Walker
4. *L. flexuosus* Aube
5. *L. parvulus* Aube
6. *L. sharpi* Regimbart

Subfamily HYDROPORINAE

7. *Hydrovatus fuscus* Sharp
8. *Herophydrus musicus* (Klug)
9. *Hyphydrus (Apriophorus) flavicans* Regimbart
10. *H. (A.) intermixtus* (Walker)
11. *Peschetius toxophorus* Guignot
12. *P. quadricostatus* (Aube)
13. *Guignotus flammulatus* (Sharp)
14. *G. pendjabensis* Guignot
15. *G. gujaratensis* sp. n.
16. *Yola consanguinea* (Regimbart)

Subfamily COLYMBETINAE

17. *Copelatus mysorensis* Vazirani

Subfamily DYTISCINAE

18. *Eretes sticticus* (Linnaeus)
19. *Hydaticus vittatus* (Fabricius)
20. *H. luczonicus* Aube
21. *Sandracottus dejeani* (Aube)
22. *Cybister tripunctatus asiaticus* Sharp

AN ACCOUNT OF COLLECTING STATIONS

Junagadh Dist., Visavadar—3.ix.1969. This place is situated between the river Dharpar to the north and Popatdi and Mayari rivers to the south. On the eastern side it is more or less bounded by the railway line. All these three rivers originate in the eastern hills, about 10 miles up stream. These rivers get swollen

during heavy showers of the monsoon but very soon, within 4-5 days most of the water drains away, leaving behind nothing more than a small stream. The bed of all the three rivers is made up of gravel and boulders. There is no vegetation, floating or submerged, in any of these rivers.

There are no ponds in the vicinity of this small village and water is generally very scarce.

Junagadh Dist., Sasangir, 8.ix.1969: It is sanctuary area for the Indian Lion. River Hiran flows near the guest house. There is a dam upstream on this river, only a small amount of water is let off through sluices. Near the guest house, at the time of collection, the velocity of water flow current was considerable. From the pools, in the bed of the course of the river, some beetles were collected. There was some algal growth, in these pools.

There had been intermittent rainfall between 14.vii.69 to 15.viii.69.

9.ix.1969—3 km. from guest house, on road to Kankai. Collecting in a rain-fed road side ditch, revealed the presence of a single specimen of *Sandracottus dejeani* (Aube) and its larvae. Further down the road and acrossing it, runs a small stream, which falls by about 4-6 meters and drains into the river Hiran. A good collection of beetles was obtained in this stream and its connecting pools, which had a fairly luxuriant growth of vegetation (algae, floating and submerged aquatic plants).

10.ix.1969—Visited the same stream but went up stream, as far as possible. Ecological conditions were the same.

11.ix.1969.—Collections were made in 4-5 streams, on the jungle roads between Sasangir and Jambuthla, on the boundry of the sanctuary area.

Jamnagar: This city is situated on the bank of the river Nagmati and is only about 15 km. from the sea. It had received its normal rainfall of about 28 cm. between 14.vii.1969 to 15.viii.1969 at frequent intervals but it had not rained since then. Thus the period/time for colonization of rain-fed ponds/pools can be estimated approximately between 4-8 weeks.

14.ix.1969. Khera Braja, about 14 km. to the south of Jamnagar. There is a stone quarry. The ditches were filled with rain water and submerged aquatic plants were also present. Many species were found in these pools. There was a larger

and shallow pool, without any aquatic vegetation and this had only a couple of species of *Guitnotus*.

15.ix.1969. A medium-sized rain-fed pond, about 10 km. from Jamnagar, on the road to Rajkot, on the left hand side between the river Nagmati and Dhuvavao river, while there was no submerged aquatic vegetation, the sides were thick with grass etc.; the water was very muddy but was being used by animals for drinking.

Quite a number of species have been collected at this spot.

16.ix.1969. Bedeshwar, about 2km. to the south of Jamnagar, a large pond, with thick vegetative growth along the edges.

Surendranagar Dist., Surendranagar : This place is situated on the bank of the Bhogava river. But this river has now been completely dammed upstream. Only a small portion of excess water is diverted through the side channels.

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The rainfall had been much below average during the year; there were not many road-side ditches.

18.ix.1969. Between the dam and the road bridge, there are many pools around the small main stream, which follows a zig zag course. Though the quantity of water in the stream is very limited, the latter is perennial because of the large dam upstream. Substratum is hard, mostly gravel, with very small quantity of alluvial soil. Submerged or floating vegetation is lacking but there is quite a luxurious growth of grass on the edges of these ponds.

19.ix.1969. After crossing the above mentioned road bridge, there is a road to Rajkot. Near the first main triway crossing, are a few road side ditches of medium size, shallow, with muddy substratum and without any vegetation. Obviously water had accumulated in these ditches due to the earlier rains.

20.ix.1969. Collections were made just below the dam. Ecological conditions were similar to those on 18.ix.1969.

21.ix.1969. Down stream of the same river, near Wadhwan town. Ecological conditions were similar to those on 18.ix. 1969,

SYSTEMATIC ACCOUNT

Order COLEOPTERA

Family DYTISCIDAE

Subfamily NOTERINAE

Hydrocoptus subvittulus Motschulsky

1860. *Hydrocoptus subvittulus* Motschulsky, *Etud. Ent.*, 8: 43.
 1968. *Hydrocoptus subvittulus*: Vazirani, *Oriental Ins.*, 1: 99.
 1969. *Hydrocoptus subvittulus*: Vazirani, *Oriental Ins.*, 2: 223.
 1970. *Hydrocoptus subvittulus*: Tonapi & Ozarkar, *J. Bombay nat. Hist. Soc.*, 66(2): 313, pl. III, fig. 5 (wrong identification).

Material.—1 ex., Surendranagar, 19.ix.1969.

Diagnosis.—Length 1.80-2.20 mm. Apex of anterior tibiae without curved spurs. Puncturation on elytra arranged in indistinct rows.

Remarks.—This species is so far known in India from Assam, Bihar, Maharashtra, Orissa and West Bengal. It is now being recorded from Gujarat for the first time.

2. Canthydrus laetabilis (Walker)

1858. *Hydroporus laetabilis* Walker, *Ann. Mag. nat. Hist.*, 3 (2): 205.
 1969. *Canthydrus laetabilis*: Vazirani, *Oriental Ins.*, 2: 229.

Material.—1 ex., Sasangir, 9.ix.1969; 1 ex., Jamnagar, 15.ix.1969; 19 ex., 18.ix.1969; 1 ex., 19.ix.1969; 5 ex., 20.ix.1969; 10 ex., 21.ix.1969, Surendranagar.

Diagnosis.—Length 2.25-2.7 mm. Apex of anterior tibiae with curved spurs. Prosternal process moderately broad, truncate posteriorly. Pronotum testaceous; elytra brownish-black with two basal orange-yellow spots arranged transversely and one transverse irregular spot situated post-medially.

Remarks.—This is a very widely distributed species from Belgian Congo in Africa to W Pakistan, India, Nepal, Burma and Ceylon. In India also it is very widely distributed. Though not so far known from Gujarat, it is already reported from adjoining states of Maharashtra and Rajasthan.

Subfamily LACCOPHILINAE

3. Laccophilus chinensis inefficiens Walker

1858. *Laccophilus chinensis* Boheman, *K. SV. Fregatten Eugenie's Resa* Coleopteres, 2: 21.

1859. *Laccophilus inefficiens* Walker, *Ann. Mag. nat. Hist.*, (3) 3: 51.
 1969. *Laccophilus chinensis inefficiens*: Vazirani, *Oriental Ins.*, 2: 243.
 1971. *Laccophilus chinensis inefficiens*: Vazirani, *Oriental Ins.*, 4: 443 (Goa).

Material.—4 ex., Sasangir, 9.ix.69 ; 1 ex. Same locality, 10.ix.69 ; 1 ex., Jamnagar, 16.ix.69.

Diagnosis.—Length 3.2-3.6 mm. Elytra testaceous, markings consisting of brown/black irrotations, with a sub-basal fascia having six short anteriorly radiating (converging to base) lines.

Remarks.—This subspecies occurs in India, Burma, Ceylon and West Pakistan. In India, it has been reported from Assam, Bihar, Madhya Pradesh, Maharashtra, Orissa, Punjab, Rajasthan, Uttar Pradesh, West Bengal, Himachal Pradesh and Goa.

It is now being recorded from Gujarat for the first time.

4. *Laccophilus flexuosus* Aube

1838. *Laccophilus flexuosus* Aube, In Dejean's *Species Coleopteres*, 6: 430.

1969. *Laccophilus flexuosus*: Vazirani, *Oriental Ins.*, 2: 245-246.

Material.—6 ex., 14.ix.69, Jamnagar ; 3 ex., same locality, 15.ix.69 ; 2 ex. ; same locality, 16.ix.69.

Diagnosis.—Length 3.1-4.25 mm. Elytra testaceous, markings consisting of very fine flexuosus lines, somewhat darker in posterior half.

Remarks.—This species is widely distributed from West Pakistan, India to Indonesia (Sumatra). In India it has been reported from Andhra Pradesh, Bihar, Madhya Pradesh, Madras, Maharashtra, Mysore, Orissa, Rajasthan, Uttar Pradesh, West Bengal and Himachal Pradesh.

It is now being recorded from Gujarat for the first time.

5. *Laccophilus parvulus* Aube

1838. *Laccophilus parvulus* Aube, in Dejean's *Species Coleopteres*, 6: 429.

1969. *Laccophilus parvulus*: Vazirani, *Oriental Ins.*, 2: 247.

1969. *Laccophilus parvulus*: Tonapi & Ozarkar, *J. Bombay nat. Hist. Soc.*, 66 (2): 314.

1970. *Laccophilus parvulus*: Vazirani, *Oriental Ins.*, 4 (2): 178 (Andaman Islands).

1971. *Laccophilus parvulus*: Vazirani, *Oriental Ins.*, 4: 442 (Goa).

Material.—26 ex., 14.ix.69 ; 7 ex., 15.ix.69 ; 54 ex., 16.ix.69, Jamnagar ; 3 ex., 18.ix.69 ; 2 ex., 21.ix.69, Surendranagar.

Diagnosis.—Length 2.75-3.7 mm. Pronotum testaceous, often with narrow streak of black towards the middle of anterior and posterior margins. Elytra testaceous to ferruginous, with undulating longitudinal black lines sometimes confluent in two and two, sometimes reduced to five or six such lines with anterior and posterior fascia.

Remarks.—This species is very widely distributed from West Pakistan, India, Ceylon to 'Indo-China' In India it has been reported from Andhra, Assam, Bihar, Goa, Madhya Pradesh, Maharashtra, Madras, Manipur, Orissa and Rajasthan. It is now being recorded from Gujarat for the first time.

6. *Laccophilus sharpi* Regimbart

1889. *Laccophilus sharpi* Regimbart, *Ann. Soc. ent. Fr.*, (6) 9: 151.

1969. *Laccophilus sharpi*: Vazirani, *Oriental Ins.*, 2: 249.

Material.—37 ex., 14.ix.69; 5 ex., 15.ix.69; 3 ex., 16.ix.69, Jamnagar, 1 ex., 18.ix.69; 1 ex., 19.ix.69; 3 ex., 21.ix.69, Surendranagar.

Diagnosis.—Length 3.5-4.0 mm. Very close to *L. parvulus* but generally larger in size; the black lines along the middle of anterior and posterior margins of pronotum generally thicker; elytral zig zag lines clearer and thicker than in *parvulus* but never coalescent. Doubtful specimens can be confirmed only by the study of male genitalia.

Remarks.—This is a very widely distributed species from West Pakistan, India, Ceylon to 'Indo-china' and Indonesia. In India it has so far been recorded from Bihar, Madhya Pradesh, Madras, Maharashtra, Orissa, Rajasthan, Uttar Pradesh, West Bengal. It is now being recorded from Gujarat for the first time.

Subfamily HYDROPORINAE

7 *Hydrovatus fuscus* Sharp

1882. *Hydrovatus fuscus* Sharp, *Sci. Trans. R. Dublin Soc.*, 2: 326.

1970. *Hydrovatus fuscus*: Vazirani, *Oriental Ins.*, 4 (1): 106.

Material.—4 ex., Jamnagar, 15.ix. 69; 5 ex., Surendranagar, 18.ix.69; 1 ex., same loc., 21.ix.69.

Diagnosis.—Length 2.25-2.5 mm. Elytra testaceous, clypeus rebordered and slightly raised anteriorly; reticulation on elytra obsolete; punctation on metasternum and hind coxal plates large, profound and dense.

Remarks.—This species is widely distributed in the Oriental Region. In India it is known from Bihar, Assam, Orissa and West Bengal. It is now being reported from Gujarat for the first time.

8. *Herophydrus musicus* (Klug)

1833. *Hydroporus muscius* Klug, *Symbolae Physicae*, 4: 33.

1970. *Herophydrus musicus*: Vazirani, *Oriental Ins.*, 4 (1): 112.

Material.—4 ex., Jamnagar, 14.ix.69; 1 ex., Surendranagar, 21.ix.69.

Diagnosis.—Length 2.5-2.8 mm. Only species of the genus occurring in India. Very near to the genus *Hyphoporus* Sharp (Vazirani, 1969 b). Elytral markings usually consisting of five black longitudinal lines interrupted 2-3 times to form elongate spots but may be reduced to 3 elongate lines each consisting of 1-2 small spots.

Remarks.—This is a very widely distributed species, extending from North Africa, southern parts of U.S.S.R. (Turkistan), through India, Pakistan and Nepal to Burma. In India it is so far known from Andhra Pradesh, Bihar, Madras, Madhya Pradesh, Rajasthan and Uttar Pradesh.

9. *Hyphydrus* (*Apriophorus*) *flavicans* Regimbart

1892. *Hyphydrus flavicans* Regimbart, *Ann. Soc. ent. Belg.*, 36: 115.

1969. *Hyphydrus* (*Apriophorus*) *flavicans*: Vazirani, *Oriental Ins.*, 2: 305.

Material.—3 ex., Jamnagar, 14.ix.69; 1 ex., same loc., 15.ix.69; 2 ex., same locality, 16.ix.69.

Diagnosis.—Length 4.4-4.2 mm. Punctuation on elytra simple; pronotum largely testaceous; all segments of the anterior and middle tarsi concolorous. Male with a small spine on the 2nd abdominal sternite directed backwards; female with a small fossette situated in the middle of the outer longitudinal black band of the elytra.

Remarks.—This species is known from West Pakistan and India. In India it is reported from Bihar, Madras, Orissa and Rajasthan. It is now being reported from Gujarat for the first time.

10 *Hyphydrus* (*Apriophorus*) *intermixtus* (Walker)

1858. *Hydroporus intermixtus* Walker, *Ann. Mag. nat. Hist.*, (3) 2: 204.

1969. *Hyphydrus* (*Apriophorus*) *intermixtus*, Vazirani, *Oriental Ins.*, 2: 305-306, fig. 13 F.

1969. *Hyphydrus indicus*: Tonapi & Ozarkar, *J. Bombay nat. Hist. Soc.*, 66 (2), 315.

Material.—1 ex., Jamnagar, 15.ix.69.

Diagnosis.—Length 3.5-4.1 mm. *Punctuation* on elytra simple, pronotum largely black in the middle; apical segment of the fore and middle tarsi black; male without a small spine/tubercle on the 2nd abdominal sternite.

Remarks.—This specimen is particularly small in size, measuring about 3.5 mm. only as against earlier records of 3.9-4.1 mm. It is so far known from Ceylon and India: Madras, Maharashtra and Rajasthan. It is now being reported from Gujarat for the first time.

11. *Peschetius toxophorus* Guignot

1943. *Peschetius toxophorus* Guignot, *Bull. Soc. Et. sci. Nat.*, Vaucluse, 1942: 21.

1970. *Peschetius toxophorus*: Vazirani, *Oriental Ins.*, 4: 113.

Material.—3 ex., Visavadar, 3.ix.69; 1 ex., Sasangir, 8.ix.69; 1 ex., same loc., 9.ix.69; 6 ex., same loc., 10.ix.69; 31 ex., same loc., 11.ix.69.

Diagnosis.—Length 2.9-3.35 mm. Head largely black. Elytra with two longitudinal carinae, the inner straight and commencing directly behind the base of elytra and attaining four-fifths of their length, the outer beginning some distance from the humeral region and extending (almost parallel to the inner one) for three fourths of its length and then widely rounded and converging to join the inner carina at its apex.

Remarks.—In India, it is so far known from Bihar, Madras, Maharashtra, Orissa, Rajasthan and Mysore. It is now being reported from Gujarat for the first time.

12. *Peschetius quadricostatus* (Aube)

1838. *Deronectes quadricostatus* Aube, in Dejean's *Species Coleopteres*, 6: 486.

1968. *Peschetius quadricostatus*: Vazirani, *Oriental Ins.*, 1: 108.

1969. *Peschetius quadricostatus*: Tonapi & Ozarkar, *J. Bombay nat. Hist. Soc.*, 66 (2): 315.

1970. *Peschetius quadricostatus*: Vazirani, *Oriental Ins.*, 4: 115,

Material.—1 ex., Sasangir, 9.ix.69; 6 ex., same loc.,

10.ix.69 ; 1 ex., same loc., 11.ix.69 ; 3 ex., Jamnagar, 14.ix.69 ; 1 ex., same loc., 15.ix.69.

Diagnosis.—Length 2.9-3.4 mm. Differs from the above species in having the head reddish brown and punctation on the sixth abdominal sternite less fine.

Remarks.—This species is very common in India, having been reported from Bihar, Kerala (Malabar), Madras, Maharashtra, Orissa and Uttar Pradesh. It is now being reported from Gujarat for the first time.

13. *Guignotus flammulatus* (Sharp)

1882. *Bidessus flammulatus* Sharp, *Sci. Trans. R. Dublin Soc.*, 2: 359.

1969. *Guignotus flammulatus*: Vazirani, *Oriental Ins.*, 2: 313.

Material.—2 ex., Surendranagar, 18.ix.69 ; 4 ex., same loc., 20.ix.69.

Diagnosis.—Length 2.3-2.5 mm. Laterobasal plica of pronotum not continued on the elytra ; elytra testaceous with black markings as under : (i) basal transverse band quite broad and irregular but not touching the suture, (ii) large broad stripe a long suture, indented and irregular on the outer side.

Remarks.—It is a very widely distributed species extending from West Pakistan, India to Southern China and Viet Nam (Tonkin). In India it is recorded from Orissa, Rajasthan, Uttar Pradesh and West Bengal. It is now being recorded from Gujarat for the first time.

14. *Guignotus pendjabensis* Guignot

1954. *Guignotus pendjabensis* Guignot, *Opusc. ent.*, 14: .221.

1969. *Guignotus pendjabensis*: Vazirani, *Oriental Ins.*, 2: 320.

In Press. *Guignotus pendjabensis*, Vazirani, *Oriental Ins.*, (Goa).

Material.—9 ex., Jamnagar, 14.ix.69 ; 13 ex., same loc., 16.ix.69 ; 1 ex., Surendranagar, 18.ix.69 ; 1 ex., same loc., 19.ix.69 ; 1 ex., same loc., 20.ix.69.

Diagnosis.—Length 1.75-1.82 mm. Laterobasal plica on pronotum distinctly continued on elytra ; pronotal plica at least half the length of pronotum ; elytral markings consisting of two parallel longitudinal lines terminating externally in the form of a crochet.

Remarks.—Its known distribution is limited to West Pakistan ; India : Bihar, Goa, Madras, Maharashtra, Madhya

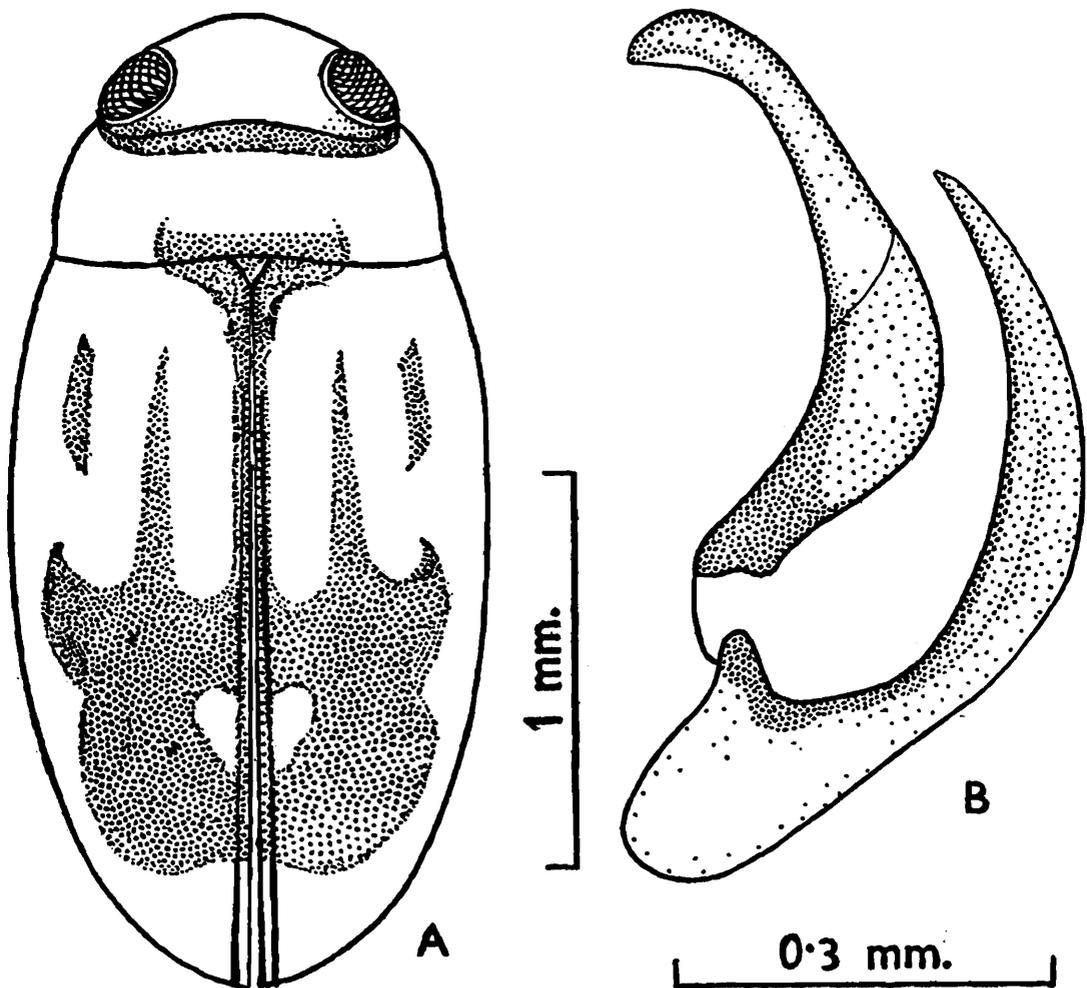
Pradesh, Orissa and Rajasthan. It is now being reported from Gujarat for the first time.

15. *Guignotus gujaratensis* sp.n.

Length 2.4-2.6 mm. Breadth 1.1-1.2 mm.

Form elongate, a little attenuated posteriorly and between the pronotum and the base of the elytra; dorsal surface pubescent.

Head testaceous, narrowly ferruginous along the posterior border; punctation very fine, irregular and quite sparse; reticulation indistinct; clypeus truncated anteriorly; antennae of moderate size, not exceeding in length the base of the elytra.



Text-fig. 1. *Guignotus gujaratensis* sp.n.—A. Dorsal view
B. Lateral view of penis and paramere.

Pronotum testaceous, ferruginous along the anterior margin and in between the laterobasal plica; sides moderately convex forming a distinct angle with the base of elytra; punctation moderate, irregular, separated by 1-2 times its own diameter

on the disc but very close along the posterior border, between the laterobasal plica; reticulation obsolete, consisting of minute rounded areoles; laterobasal plica incurved, small, about one fourth the length of pronotum but hardly continued on the elytra.

Elytra, testaceous with brown markings as shown in the figure; sutural striae distinct, near the base merging with strong and dense punctation; pubescence, white, moderate and quite dense; punctation larger and denser than on the pronotum, very close but not coalescent on the disc; reticulation distinct, consisting of small rounded areoles; laterobasal plica generally absent but sometimes continued as a small point in some specimens.

Ventral side ferruginous; epipleurae and legs testaceous; penis (text fig. 1 b) quite narrowed towards the apex.

Remarks.—This species comes near to *Guignotus pradhani* Vazirani, in size as well as the character of the laterobasal plica on pronotum, but it is comparatively larger in size viz. 2.4-2.6 mm. as against 2.2-2.4 mm. It chiefly differs from *G. pradhani* in the punctation on elytra being less dense separated by 4-5 times its own diameter as against very close. The elytral markings also differ in these two species.

Holotype ♂, INDIA: Gujarat, Jamnagar, 14.ix.69 (T. G. Vazirani Coll.).

Paratypes, 13 ex. with same particulars as holotype; 1 ex., same locality, 15.ix.69; 2 ex., same locality, 16.ix.69; 5 ex., Surrindranagar, 18.ix.69; 13 ex., same locality, 19.ix.69; 1 ex., same locality, 20.ix.69.

16. *Yola consanguinea* (Regimbart)

1892. *Bidessus consanguineus* Regimbart, *Ann. Soc. ent. Belg.*, **36**: 118.

1968. *Yola consanguinea*: Vazirani, *Oriental Ins.*, **1**:107.

1969. *Yola consanguinea*: Vazirani, *Oriental Ins.*, **2**: 333.

1969. *Yola consanguinea*: Tonapi and Ozarkar, *J. Bombay nat. Hist. Soc.*, **66** (2): 315.

Material.—3 ex., Visavadar, 3.ix.69; 15 ex., Sasangir, 9.ix.69; 9 ex., same loc., 10.ix.69; 6 ex., Jamnagar, 14.ix.69.

Diagnosis.—Length 1.7-1.8 mm. Two longitudinal carinae on each elytron, one sub-lateral and the other a little to the median line, both extending from the base to three fourths the length of the elytron.

Remarks.—This species has been considered by Tonapi & Ozarkar (1969) to be rare in Poona, but Vazirani (1968) collected and reported over 100 examples from Poona,

It is so far reported from India : Bihar, Orissa and Maharashtra, and is now being reported from Gujarat for the first time.

Subfamily COLYMBETINAE

17 *Copelatus mysorensis* Vazirani

1970. *Copelatus mysorensis* Vazirani, *Oriental Ins.*, 4: 319.

Material.—1 ex., ♀, Jamnagar, 16.ix.69.

Remarks.—So far known only from its Type locality Shimoga, Mysore, it is now being reported from Gujarat for the first time, which shows that the species is quite widely distributed.

Subfamily DYTISCINAE

18. *Eretes sticticus* (Linnaeus)

1767. *Dytiscus sticticus* Linnaeus, *Systema Naturae*, Holmiae, ed. 12, 1 (2): 666.

1969. *Eretes sticticus*: Vazirani, *Oriental Ins.*, 2: 254.

1969. *Eretes sticticus*: Tonapi & Ozarkar, *J. Bombay nat. Hist.* 66 (2): 34, fig. 8.

1969. *Eretes sticticus*: Vazirani, *Spolia zeylanica*, 31 (2): 402.

1970. *Eretes sticticus*: Vazirani, *Oriental Ins.*, 4 (2): 180 (Andaman Islands).

1971. *Eretes sticticus*: Vazirani, *Oriental Ins.*, 4: 441 (Goa).

Material.—2 ex., Sasangir, 9.ix.69 (associated with larvae).

Diagnosis.—Length 10.0-17.0 mm. Sides of pronotum rebordered ; lateral margins of elytra serrated in posterior half ; elytra testaceous, entirely covered with black irrotations and with some blotched spots.

Remarks.—This species is very common through out the tropical and subtropical regions of the world.

In India it is known from Andhra Pradesh, Assam, Bihar, Goa, Kashmir, Madras, Maharashtra, Manipur, Mysore, Orissa, Punjab, Rajasthan, West Bengal, Uttar Pradesh and Andaman Islands. It is now being reported from Gujarat for the first time.

19. *Hydaticus vittatus* (Fabricius)

1775. *Dytiscus vittatus* Fabricius, *Systema Entomologiae*, Appendix: 825.

1968. *Hydaticus vittatus*: Vazirani, *Oriental Ins.*, 1: 110.

1969. *Hydaticus vittatus*: Vazirani, *Spolia zeylanica*, 31 (2): 402.

Material.—4 ex., Sasangir, 10.ix.69; 1 ex., Jamnagar, 15.ix.69.

Diagnosis.—Length 12.0-14.0 mm. Elytra black with longitudinal yellow stripes joined together posteriorly after the middle.

Remarks.—This is quite a widely distributed species in the Oriental Region. Sato (1961) has attempted revision of this species complex but much remains to be done. This species is retained here in its broad sense.

In India it is reported from several states but is now being reported from Gujarat for the first time.

20. *Hydaticus luczonicus* Aube

1838. *Hydaticus luczonicus* Aube, in Dejean's *Species Coleopteres*, 6: 179.

1968. *Hydaticus luczonicus*: Vazirani, *Oriental Ins.*, 1: 110.

1969. *Hydaticus luczonicus*: Vazirani, *Oriental Ins.*, 2: 262.

1969. *Hydaticus luczonicus*: Tonapi and Ozarkar, *J. Bombay nat. Hist. Soc.*, 66 (2): 312.

Material.—2 ex., Sasangir, 10.ix.69.

Diagnosis.—Length 13.0-14.5 mm. Pronotum with a moderately broad median longitudinal black band. Elytra black, with broad yellowish lateral stripe; more or less densely irrotated with black spots having a narrow transverse sub-basal elongation.

Remarks.—It is a very widely distributed species from India to Indo-China & Philippine Islands. In India it is known from Bihar, Gujarat, Madhya Pradesh, Maharashtra, Orissa, Rajasthan, Uttar Pradesh and West Bengal.

21. *Sandracottus dejeani* (Aube)

1838. *Hydaticus dejeani* Aube, in Dejean's *Species Coleopteres*, 6: 165.

1969. *Sandracottus dejeani*: Vazirani, *Oriental Ins.*, 2: 275.

Material.—1 ex., Sasangir, 9.ix.69 (associated with 2 larvae).

Diagnosis.—11.50-13.0 mm. Apical spurs of the hind tibiae blunt, more or less bifid; head reddish-yellow, black along the posterior border of vertex, without any other spots; elytra black, with golden yellow markings characteristic for the species.

Remarks.—It is limited in distribution to India and West Pakistan. In India it has been reported from Andhra, Bihar, Madhya Pradesh, Orissa, Rajasthan and Uttar Pradesh. It is now being recorded from Gujarat for the first time. The larvae have been described by Vazirani (1971).

22. *Cybister tripunctatus asiaticus* Sharp

1882. *Cybister asiaticus* Sharp, *Sci. Trans. R. Dublin Soc.*, 2: 731.

1969. *Cybister tripunctatus asiaticus*: Vazirani, *Oriental Ins.*, 2: 290.

Material.—1 ex., Surendranagar, 18.ix.69.

Diagnosis.—Length 21.0-30.0 mm. Elytra with a yellow lateral stripe extending to and including the epipleurae.

Female without a rudimental second claw on posterior tarsi and without any sexual sculpture. Male with the basal segment of middle tarsi having a distinct patch of sexual pubescence.

Remarks.—This subspecies is widely distributed in India and the Oriental Region. Though known from most of the Indian states, it is now being recorded from Gujarat for the first time.

SUMMARY

This is a report on the collection of Dytiscidae from Gujarat. The collection was made by the author in the year 1969. Twenty two species, spread over 14 genera are represented in this collection. Of these one is new to science and remaining 21 species are being recorded from this state for the first time.

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