

NOTES ON THE INDIAN SPECIES OF THE GENUS *PSEUDAGRION*
SELYS (COENAGRIONIDAE : ODONATA)

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ABSTRACT

Altogether 11 species of the genus *Pseudagrion* Selys from India are dealt with in the present paper, of which *P. andamanicum* Fraser is recorded for the first time from the main land and three others from the different parts of India.

Pseudagrionids are medium sized damselfly. Adults are commonly observed in between July to December on the sides of the perennial as well as temporary monsoon ponds. Sometimes they also occur near the still and slow running hill streams. So far, altogether 11 species under the genus *Pseudagrion* Selys are known from India (Fraser, 1933 and Davies *et al.*, 1984). Species belonging to the genus *Pseudagrion* Selys are distributed to Madagascar, India, Burma, Sri Lanka, Malaysia, Java, Sumatra, New Guinea, Australia, South China, Japan, Philippines, Fiji and Somoa (Laidlaw, 1919, Fraser, 1933 and 1957, Leiftinck, 1954, Pinhey, 1964, 1971 and 1973 and Kumar and Prasad, 1981).

In this paper a large number of specimens of the genus *Pseudagrion* Selys present in the Survey were studied and thus 8 species are recorded. Measurements (in mm), collection data, variations from the published descrip-

tions of the species, brief zoogeographical distribution (Table-I) and key for their discrimination are provided. *Pseudagrion andamanicum* Fraser is recorded for the first time from the main land i.e. Orissa while *P. decorum* (Rambur), *P. malabaricum* Fraser and *P. hypermelas* Selys are recorded from Orissa, Bihar and Gujarat respectively.

1. *Pseudagrion microcephalum* (Rambur)

1842. *Agrion microcephalum* Rambur, *Ins. Neurop.*, : 259.
1876. *Pseudagrion microcephalum* Selys, *Bull. Acad. Belg.*, (2)42 : 504 ; 1916. Laidlaw, *Rec. Indian Mus.*, 12 : 21-24 ; 1933. Fraser, *Fauna Brit. India*, 1 : 278-280 ; 1972. Mitra & Lahiri, *Entomologist's Rec. J. Var.*, 84 : 19 (Reproductive behaviour) ; 1979. Lahiri, *Oriental Ins.*, 13 : 120 ; 1982. Prasad & Ghosh, *J. Bombay nat. Hist. Soc.*, 79 : 290 ; 1982. Ram *et al.*, *Rec. zool. Surv. India*, 80 : 171 ; 1983. Mitra, *Entomologists' mon. Mag.*, 119 : 29 ; 1983. Ram *et al.*, *Notul. Odonatol.*, 2 : 15.

Measurements :

| | <i>Abdomen</i> | <i>Forewing</i> | <i>Hindwing</i> |
|----------|----------------|-----------------|-----------------|
| Male : | 28.00-29.00 mm | 17.00-19.00 mm | 17.00-18.00 mm |
| Female : | 31.00 mm | 21.00 mm | 21.00 mm |

Material : 4 ♂♂, Santragachi, Howrah (West Bengal); 22.11.1976, 24.11.1976, 28.11.1979 and 29.11.1976, coll. Raja Ram; 2 ♂♂, 1 ♀, Sheoraphully, Netaji Colony, Hooghly (West Bengal). 24.10.1975, coll. K. K. Roy and 1 ♀, Baruipur, Khadarpara, 24 Parganas (West Bengal), 25.11.1975, coll. K. K. Roy.

Remarks : Commonly observed at both permanent and temporary water bodies. Male shows a wide range of variations in the markings of head, thorax and second abdominal segment (Ram *et al.*, 1982). Postnodal nervures varies from 9 to 10 in forewings and 8 in hindwings of male and 10-11 in fore and 8-9 in hindwings of the female.

Male specimens of this species can easily be separated from other species by the presence of goblet-shaped black marking on the dorsum of the second abdominal segment.

2. *Pseudagrion andamanicum* Fraser

(Fig. 1)

1924. *Pseudagrion andamanicum* Fraser, *Rec. Indian Mus.*, 26 : 411-412; 1933. Fraser, *Fauna Brit. India*, 1 : 281-282; 1933. Chhotani *et al.*, *Rec. zool. Surv. India*, 80 : 477.

Measurements :

| | <i>Abdomen</i> |
|------------------|------------------|
| Male | (damaged) |
| <i>Forewings</i> | <i>Hindwings</i> |
| 19.00 mm | 18.50 mm |

Material : 1 ♂, Ballugaon (Fishery Research Inst. Campus, Puri), Orissa, 18.3.1974, coll. R. K. Kacker.

Black humeral stripe quite thick, distinct,

and parallel to the mid dorsal carinal stripe, antehumeral black stripe also thick, dilated anteriorly and tapering towards posterior side and becomes almost pointed at the end. (as in the figure 1); wings hyaline, not faintly enfumed; 9 postnodal nervures in forewings and 7-8 in hind. Superior anal appendages brownish black, tip black. *P. andamanicum* can easily be distinguished from *P. microcephalum* and other species of the genus by having black rectangular dorsal subapical spot on second abdominal segment. This marking is connected to a narrow apical annule by a short linner neck, and to the base by a fine black line on the mid-dorsal carina (Fraser 1933).

It is recorded for the first time from the main land of India (Orissa).

3. *Pseudagrion australasiae* Selys

1916. *Pseudagrion australasiae*, Laidlaw, *Rec. Indian Mus.*, 12 : 21-23; 1919. Laidlaw, *Rec. Indian Mus.*, 16 : 192.
1933. *Pseudagrion bengalense*, Fraser, *Fauna Brit. India*, 1 : 282-284.
1954. *Pseudagrion australasiae*, Lieftinck, *Treubia*, 22 : 1-202; 1977. Lahiri, *Rec. zool. Surv. India*, 72 : 409-418; 1982. Ram *et al.*, *Rec. zool. Surv. India*, 80 : 171.

Measurements :

| | <i>Abdomen</i> |
|-----------------|-----------------|
| Male : | 28.50-32.00 mm |
| Female : | 31.00 mm |
| <i>Forewing</i> | <i>Hindwing</i> |
| 18.00-22.00 mm | 17.00-21.00 mm |
| 23.00 mm | 22.00 mm |

Material : 3 ♂♂, Santragachi, Howrah, (West Bengal), 11.12.1976 and 26.12.1976, coll. Raja Ram ; 1 ♂, Paikpara, Calcutta (West Bengal) 13.4.1980, coll. M. Prasad and 1 ♀, Santragachi, Howrah, 28.11.1976, coll. Raja Ram.

Variations in the head markings as well as in wing venation are quite similar as noted by Ram *et al.* (1982), except in postnodal nervures in hindwing which is 8 in number in the specimen collected from Paikpara.

Specimens of this species were very common from June to December at the permanent water bodies. Vase-shaped black marking present on the dorsum of the second abdominal segment which is dilated in the middle, can distinguish it from other species of the genus.

4. *Pseudagrion malabaricum* Fraser

1924. *Pseudagrion malabaricum* Fraser, *Rec. Indian Mus.*, 26 : 428, 494-495 ; 1933. Fraser, *Fauna Brit. India*, 1 : 284-286 ; 1983 Mitra, *Entomologists' mon. Mag.*, 119 : 29.

Measurements :

| | Abdomen | Forewing | Hindwing |
|--------|----------|----------|----------|
| Male : | 32.00 mm | 22.50 mm | 22.00 mm |

Material : 1 ♂, Hazaribagh Lake, Hazaribagh (Bihar), 15.3.1983, coll. M. Prasad.

During the course of Chhota Nagpur Hills survey in the month of March, 1983 a single male of this species was collected from a fairly big lake situated in the vicinity of Hazaribagh town. However, this specimen agrees fairly well with the published descriptions of the species. *P. malabaricum*, a very close species to *P. microcephalum*, and *P. australasiae* but separable from both the

species by superior anal appendages, which is not bifid at its apex. It is recorded for the first time from Bihar.

5. *Pseudagrion decorum* (Rambur)

(Fig. 2-9)

- 1842, *Agrion decorum* Rambur, *Ins. Neurop.* : 258.
 1876. *Pseudagrion decorum*, Selys, *Bull. Acad. Belg.*, (2)42 : 504 ; 1916. Laidlaw, *Rec. Indian Museum*, 12 : 24 ; 1933. Fraser, *Fauna Brit. India*, 1 : 286-289 ; 1953. Bhasin, *Indian For. Leaflet*, 121 : 68 ; 1981, Kumar & Prasad, *Rec. zool. Surv. India, occ. pap.*, No. 20 : 36 ; 1982. Prasad & Ghosh, *J. Bombay nat. Hist. Soc.*, 79 : 290 ; 1982. Ram *et al.*, *Rec. zool. Surv. India*, 80 : 173 ; 1983. Mitra, *Entomologists' mon. Mag.*, 119 : 29 ; 1983. Ram *et al.*, *Notul. Odonatol.*, 2 : 15.

Measurements :

| | Abdomen | |
|----------|----------------|----------------|
| Male : | 28.00-31.00 mm | |
| Female : | 27.00-27.50 mm | |
| | Forewing | Hindwing |
| | 18.50-21.50 mm | 18.00-20.00 mm |
| | 18.00-22.00 mm | 17.00-20.00 mm |

Material ; 1 ♂, Kharda, 24 Parganas (West Bengal), 9.11.1966, coll. S. B. Roy ; 4 ♂♂, Edapatyam, Kottayam (Kerala), 3.1.1971, coll. A. N. T. Joseph ; 1 ♂, village No. 26 (Orissa). 17.9.1972, coll. S. Khera, 1 ♂, 5 kms. North West of Forest Rest House, Chandili, Korapet (Orissa), 29.11.1973, coll. D. P. Sanyal ; 1 ♂, Nale lake, Ahmadabad (Gujarat), 4.2.1975, coll. B. Dutta ; 1 ♂ (31.7.75), 1 ♂ (2.8.75), 2 ♂♂, 1 ♀ (10.8.75), 1 ♂ (24.8.75) Santragachi, Howrah (West Bengal), coll. Raja Ram ; 1 ♂, Mettapalayam, Nilgiri (Tamil Nadu), 19.12.1975, coll. A. N. T. Joseph ; 4 ♂♂ (4.10.1976), 4 ♂♂, 1 ♀ (6.10.1976), 3 ♂♂ (7.10.1976) Mahaso, Azamgarh (U. P.), coll.

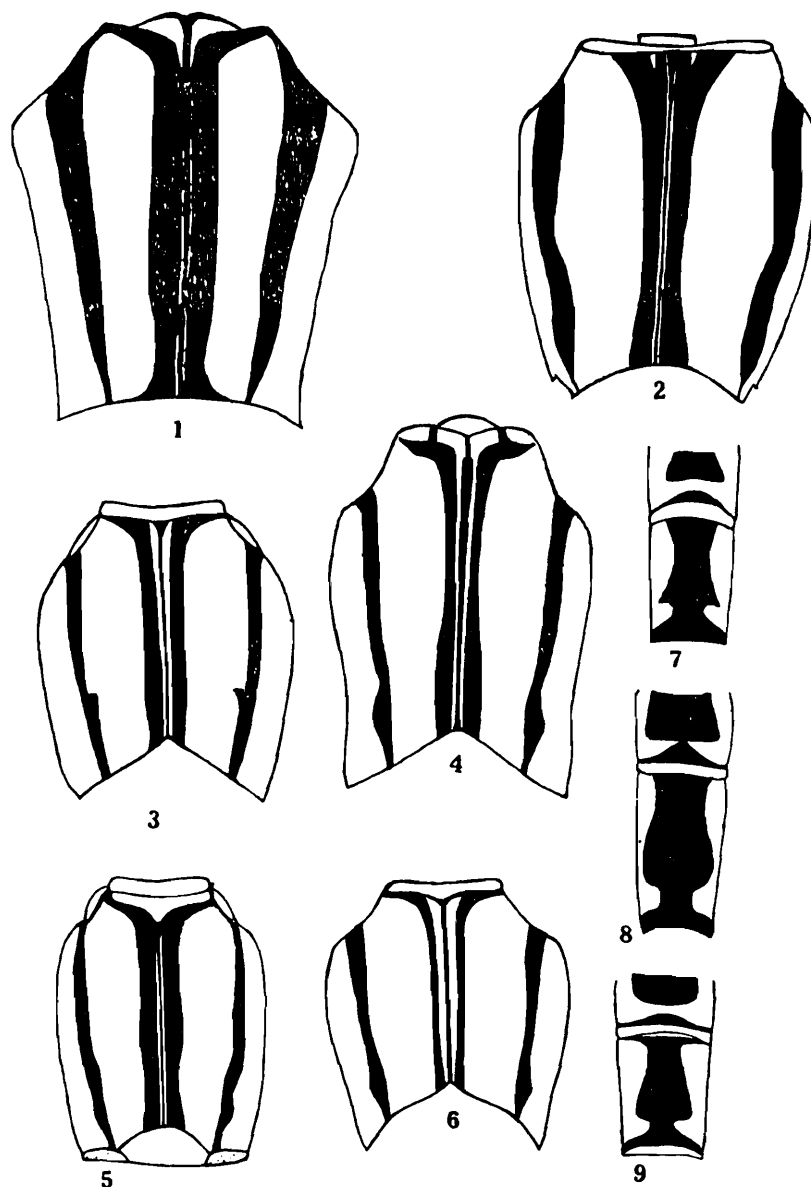


Fig. 1. Dorsal view of the thorax of *Pseudagrion andamanicum* Fraser.

Figs. 2-9. *Pseudagrion decorum* (Rambur) : 2-6, Dorsal view of the thorax showing variations in the marking ; 7-9. Dorsal view of the 1st and 2nd abdominal segments showing variations in the marking.

Raja Ram and 1 ♂, Sonawli, Gorakhpur, (U. P.), 18.10.1980, M. Prasad & D. N. Tiwari.

Adults of *P. decorum* were found common during July to October and become less in population in November and December. It becomes rare during January to March. Variations in the thorax and abdominal markings are shown in the figures 2-9. It is recorded for the first time from Orissa.

6. *Pseudagrion hypermelas* Selys

1876. *Pseudagrion hypermelas* Selys, *Bull. Acad. Belg.*, (2) 42 : 519 ; 1916. Laidlaw, *Rec. Indian Mus.*, 12 : 21, 22, 25 ; 1924, Fraser, *Rec. Indian Mus.*, 26 : 428, 498 ; 1933. Fraser, *Fauna Brit. India*, 1 : 289-292 ; 1953. Bhasin, *Indian For. Leaflet.*, 121 : 68.

Measurements :

| | Abdomen | Forewing | Hindwing |
|--------|----------|----------|----------|
| Male : | 25.00 mm | 17.00 mm | 15.50 mm |

Material : 1♂, Gujarat Survey, 1973, Dachha, 17.11.1973, coll. P. T. Cherian.

prefers grassy bank of small streams and canals. It is recorded for the first time from Gujarat.

Labium reddish brown instead of white or palest brown, Prothorax black and sides pale yellowish brown in colour,

It can easily be distinguished from other species by having black face, frons and vertex; superior anal appendages bifid as seen in profile. Apex of the superior anal appendages curved like a parrot beak. It

7. *Pseudagrion spencei* Fraser

1922. *Pseudagrion spencei* Fraser, *Mem. Dept. Agric. India (Ent.)*, 7 : 47, 48; 1933. Fraser, *Fanna Brit. India*, 1 : 292-294; 1981. Kumar & Prasad, *Rec. zool. Surv. India, Occ. Pap.*, No. 20 : 36; 1982. Ram *et al.*, *Rec. zool. Surv. India*, 80 : 173-174; 1983. Ram *et al.*, *Notull. Odonatol.*, 2 : 15.

TABLE—1. Distributional Range of Indian Species of the Genus *Pseudagrion* Selys

| Sl. No. | Name of the species | Indian limit | Nepal | Burma | Sri Lanka | Rest Oriental & Ethiopian Regions |
|---------|---|---|-------|-------|-----------|--|
| 1. | <i>Pseudagrion microcephalum</i> (Rambur) | Throughout the plains | — | + | + | Extending upto Australia in the east. |
| 2. | <i>P. andamanicum</i> Fraser | South Andamans | — | — | — | — |
| 3. | <i>P. australasiae</i> Selys | Assam, West Bengal. | — | + | — | Java and extending to Malaysia. |
| 4. | <i>P. malabaricum</i> Fraser | Throughout Western Ghats (Kodaikanal, Palni Hills, Ootacamund, Nilgiris, Lovedate Lake, Coorg), South Kanara, West Bengal. | — | — | + | — |
| 5. | <i>P. decorum</i> (Rambur) | Bilaspur, Sirmaur, Una, (H. P.), Dehradun, Nainital, Ootacamud, Nilgiris, Coorg, West Coast of India, West Bengal. | — | + | — | — |
| 6. | <i>P. hypermelas</i> Selys | Madhya Pradesh, Deccan area of the Bombay, Punjab. | — | — | — | — |
| 7. | <i>P. spencei</i> Fraser | Uttar Pradesh, Madhya Pradesh, Bihar, West Bengal, Assam, Meghalaya. | — | — | — | — |
| 8. | <i>P. laidlawi</i> Fraser | Dehra Dun (Uttar Pradesh), Punjab. | — | — | — | Pakistan |
| 9. | <i>P. rubriceps</i> Selys | Bilaspur, Hamirpur, Sirmaur (H. P.), Dehradun, Nainital, Pauri Tehri Garhwal (U. P.), West Bengal (widely distributed throughout continental India) | — | + | — | Java, Indo-China, Malaysia, Taiwan, Sunda Islands. |
| 10. | <i>P. indicum</i> Fraser | Nilgiris, Coorg, Malabar | — | — | — | — |
| 11. | <i>P. bidentatum</i> Morton | Dessa (Gujarat) | — | — | — | — |

Measurements :

| <i>Abdomen</i> | <i>Forewing</i> | <i>Hindwing</i> |
|-----------------------|-----------------|-----------------|
| Male : 21.50-24.00 mm | 14.50-17.00 mm | 14.00-16.00 mm |

Material : 1 ♂ Santragachi, Howrah (West Bengal), 26.12.1976, coll. Raja Ram ; 4 ♂ ♂, Padrauna, Deoria (U.P.), 21.10.1980, coll. M. Prasad & D.N. Tiwari ; 2 ♂ ♂, Sonawli, Gorakhpur (U.P.), 18.10.1980, coll. M. Prasad & D.N. Tiwari, 2 ♂ ♂, Barhaj Bazar, Deoria (U.P.), 23.10.1980, coll. M. Prasad & D.N. Tiwari ; 4 ♂ ♂, Sukhpura, Ballia (U.P.), 2.11.1980, coll. M. Prasad & D.N. Tiwari ; 3 ♂ ♂ Hatia, Ranchi (Bihar), 9.3.1983, coll. M. Prasad and 1 ♂, Namkum, Ranchi (Bihar), 10.3.1983, coll. M. Prasad.

A specimen collected from Sonawli, Gorakhpur (U.P.) bears a broad black marking at the base on the dorsal side of the 8th abdominal segment which becomes narrower towards the apical end. Postnodal nervure varies from 8 to 10 in the forewing and 7 to 8 in the hind.

P. spencei can easily be distinguished from *P. hypermelas* by the presence of blue ground colour of the body of the male. Superior anal appendages with a long robust spine near base. Specimens of this species are very common during September to December on the permanent water bodies and near the grassy vegetations. Sometimes a large number of teneral specimens were observed resting on the vegetation slightly away from the water bodies.

8. *Pseudagrion laidlawi* Fraser

1922. *Pseudagrion laidlawi* Fraser, *Mem. Dept. Agric. India* (Ent.), 7 : 48-50 ; 1933. Fraser, *J. Bombay nat. Hist. Soc.*, 29 : 750-755. 1953. Bhasin, *Indian For. Leafl.*, 121 : 68 ; 1981. Kumar & Prasad, *Rec. zool. Surv. India, Occ. pap.*, No. 20 : 36.

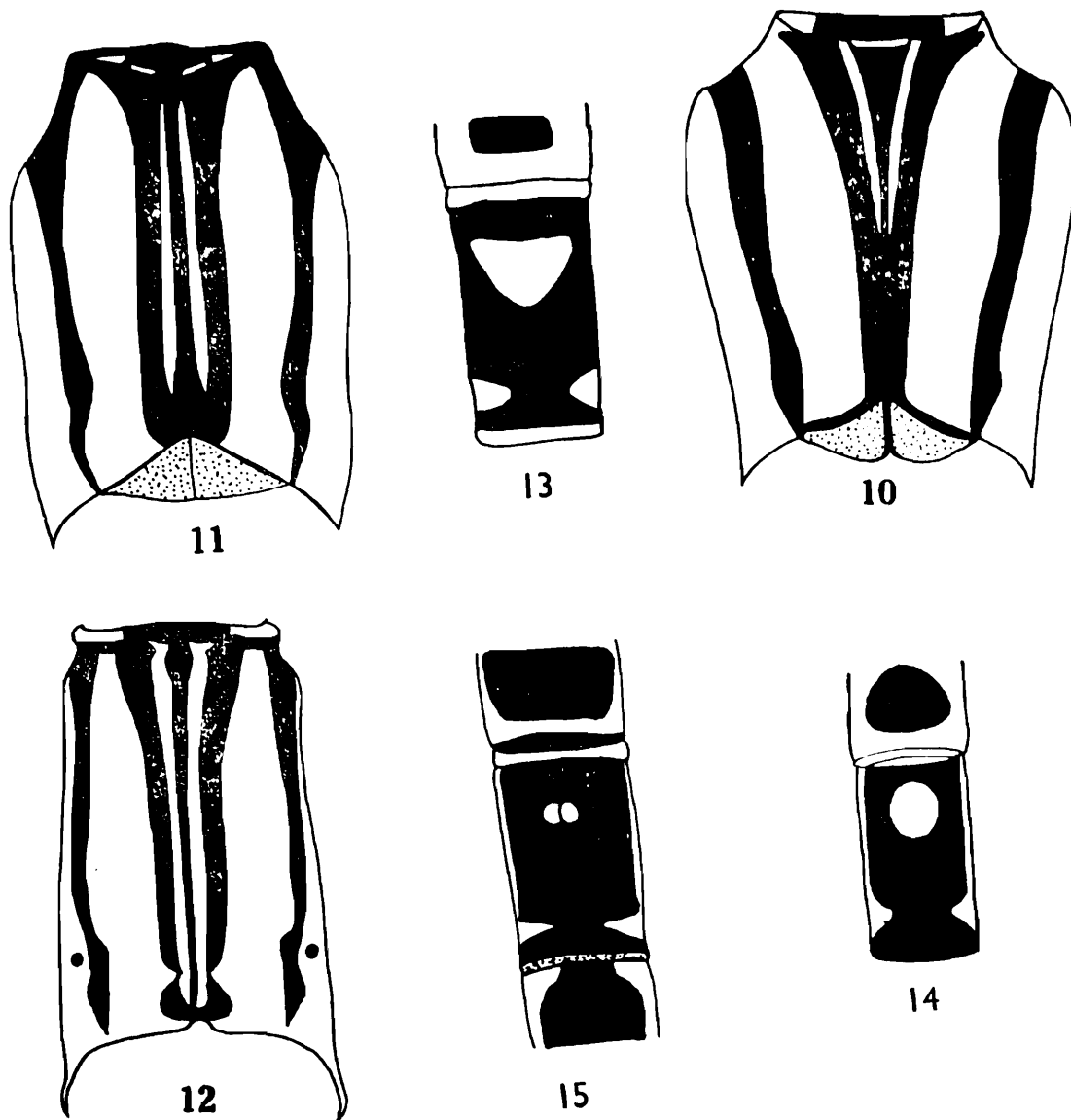
9. *Pseudagrion rubriceps* Selys
(Figs. 10-15)

1876. *Pseudagrion rubriceps* Selys, *Bull. Acad. Belg.*, (2) 42 : 510 ; 1916. Laidlaw, *Rec. Indian Mus.*, 12 : 22, 24, 25 ; 1933. Fraser, *Fauna Brit. India*, 1 : 296-299 ; 1953. Bhasin, *Indian For. Leafl.*, 121 : 69 ; 1972. Mitra & Lahiri, *Entomologist's Rec. J. Var.*, 84 : 19 ; 1979. Lahiri *Oriental Ins.*, 13 : 120 ; 1981. Kumar & Prasad, *Rec. zool. Surv. India, Occ. pap.*, No. 20 : 35-36 ; 1981. Prasad & Thakur, *Jantu*, 1 : 26 ; 1982. Ram et al., *Rec. zool. Surv. India*, 80 : 174 ; 1983. Mitra, *Entomologists' mon. Mag.*, 119 : 29 ; 1983. Ram et al. *Notul. Odonatol.*, 2 : 15.

Measurements :

| | <i>Abdomen</i> |
|-----------------|-----------------|
| Male : | 26.00-30.00 mm |
| Female : | 28.00-30.50 mm |
| <i>Forewing</i> | <i>Hindwing</i> |
| 17.00-19.05 mm | 14.50-19.00 mm |
| 21.00 mm | 20.00mm |

Material : 1 ♀, Titalgarh, Bolangir, 19.11.1972, coll. J.M. Julka ; 1 ♂, Dani Nala, Surat (Gujarat), 24.11.1973, coll. P. T. Cherian ; 1 ♂, Santragachi, Howrah (West Bengal), 1.7.1975, coll. Raja Ram ; 1 ♂, Santragachi, Howrah (West Bengal), 24.8.1975, coll. Raja Ram ; 1 ♂, Sheoraphully, Netaji Colony, Hooghly (West Bengal), 24.10.1975, coll. K. K. Roy, 1 ♀, Baruiapur, Khadarpra, 24-Parganas (West Bengal), 25.11.1975, Coll. K.K. Roy, 1 ♂ (17.1.77), 1 ♂ (22.1.77) Santragachi, Howrah, (West Bengal), coll. Raja Ram ; 4 ♂ ♂, Paikpara, Calcutta (West Bengal) 20.4.80, coll. M. Prasad ; 2 ♂ ♂, Padrauna, Deoria (U. P.), 21.10.1980, coll. M. Prasad & D. N. Tiwari ; 2 ♀ ♀, Madumalai Sanctuary, Thappa kadu (Tamil Nadu),



Figs. 10-15. *Pseudagrion rubriceps* Selys : 10-12, Dorsal view of the thorax showing variations in the marking ; 13-15, Dorsal view of the 2nd abdominal segment showing variations in the marking.

30.1.1983, coll. G. K. Srivastava ; 3 ♂♂, Agricultural farm, Netarhat, Palamau (Bihar), 7.3.1983, coll M. Prasad ; 2 ♂♂ Hatia, Ranchi (Bihar), 10.3.1983, coll. M. Prasad ; 2 ♂♂, Hatia, Ranchi (Bihar), 10.3.1983, coll. M. Prasad ; 2 ♂♂, Namkum, Ranchi (Bihar), 9.3.1983, coll. M. Prasad.

Segment 2 of *P. rubriceps* generally bears a goblet shaped marking on the dorsum, the cup with shallow concavity and its stem short and confluent with apical annule but single

specimen from three different localities and of different states revealed different types of marking. One specimen collected from Bihar (Hatia, Ranchi 10.3.1983) bears a marking similar to Coorg type (Fraser 1933) while a specimen taken from W. B. Paikpara, Calcutta, 20.4.84 bears a small round spot of ground colour and the 3rd specimen collected from U. P. (Deoria, 26.10.80) possesses a small rounded spot divided into two showing a trend to be completely blotted out as

recorded in Assam specimen by Fraser (1933) as shown in figures 13, 14 and 15 respectively.

10. *Pseudagrion indicum* Fraser

1924. *Pseudagrion indicum* Fraser, *Rec. Indian Mus.*, 26 : 428, 495-497 ; 1933. Fraser, *Fauna Brit. India*, 1 : 303-304.

Specimens of this species are not present in the National Collections of Zoological Survey of India. It breeds in small streams (Fraser, 1933). It can easily be distinguished from other species of the genus by the following: Face pale yellowish green; vertex and occiput black, marked with large azure blue postocular spots. Second abdominal segment with goblet shaped black marking on dorsal side, and also with a small medio-basal spot.

11. *Pseudagrion bidentatum* Morton

1907. *Pseudagrion bidentatum* Morton, *Trans. Ent. Soc. Lond.*, : 308 ; 1916. Laidlaw, *Rec. Indian Mus.*, 12 : 21-45 ; 1983. Davies and Tobin, *Odonatologica Rapid communications*, No. 3 : 86.

Key to the Indian species of the genus

Pseudagrion Selys

- | | | |
|---|-----|--------------------------|
| 1. Frons reddish or reddish orange | ... | 2 |
| Frons not reddish or reddish orange | ... | 3 |
| 2. Face and vertex reddish orange | ... | <i>rubriceps</i> Selys |
| Face and vertex black | ... | <i>bidentatum</i> Morton |
| 3. Face, frons and vertex black | ... | <i>hypermelas</i> Selys |
| Face, frons and vertex may be blue or green and marked with black | ... | 4 |

- | | | |
|--|-----|-------------------------------|
| 4. Thorax pale blue | ... | <i>decorum</i> (Rambur) |
| Thorax sky blue or green | ... | 5 |
| 5. Superior anal appendages not bifid | ... | 6 |
| Superior anal appendages bifid at the apex | ... | 7 |
| 6. 10-11 postnodal nervure in forewings and 9 in hindwings | ... | <i>malabaricum</i> Fraser |
| 12 postnodal nervure in forewings and 10 in hindwings | ... | <i>indicum</i> Fraser |
| 7. 10th abdominal segment bigger than superior anal appendages | ... | <i>australasiae</i> Selys |
| 10th abdominal segment and superior anal appendages equal in size | ... | 8 |
| 8. Hindwing 14-16 mm in length | ... | 9 |
| Hindwing more than 17mm in length | ... | 10 |
| 9. Long robust spine in the inner side of the base of superior anal appendages present | ... | <i>spencei</i> Fraser |
| Long robust spine in the inner side of the base of superior and appendages absent | ... | <i>laidlawi</i> Fraser |
| 10. Second abdominal segment on dorsal side with black goblet shaped marking | ... | <i>microcephalum</i> (Rambur) |
| Second abdominal segment on dorsal side with black rectangular marking | ... | <i>andamanicum</i> Fraser |

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