

Building evidence for conservation globally

Journal of Threatened Taxa

10.11609/jott.2025.17.2.26443-26570

www.threatenedtaxa.org

26 February 2025 (Online & Print)

17(2): 26443-26570

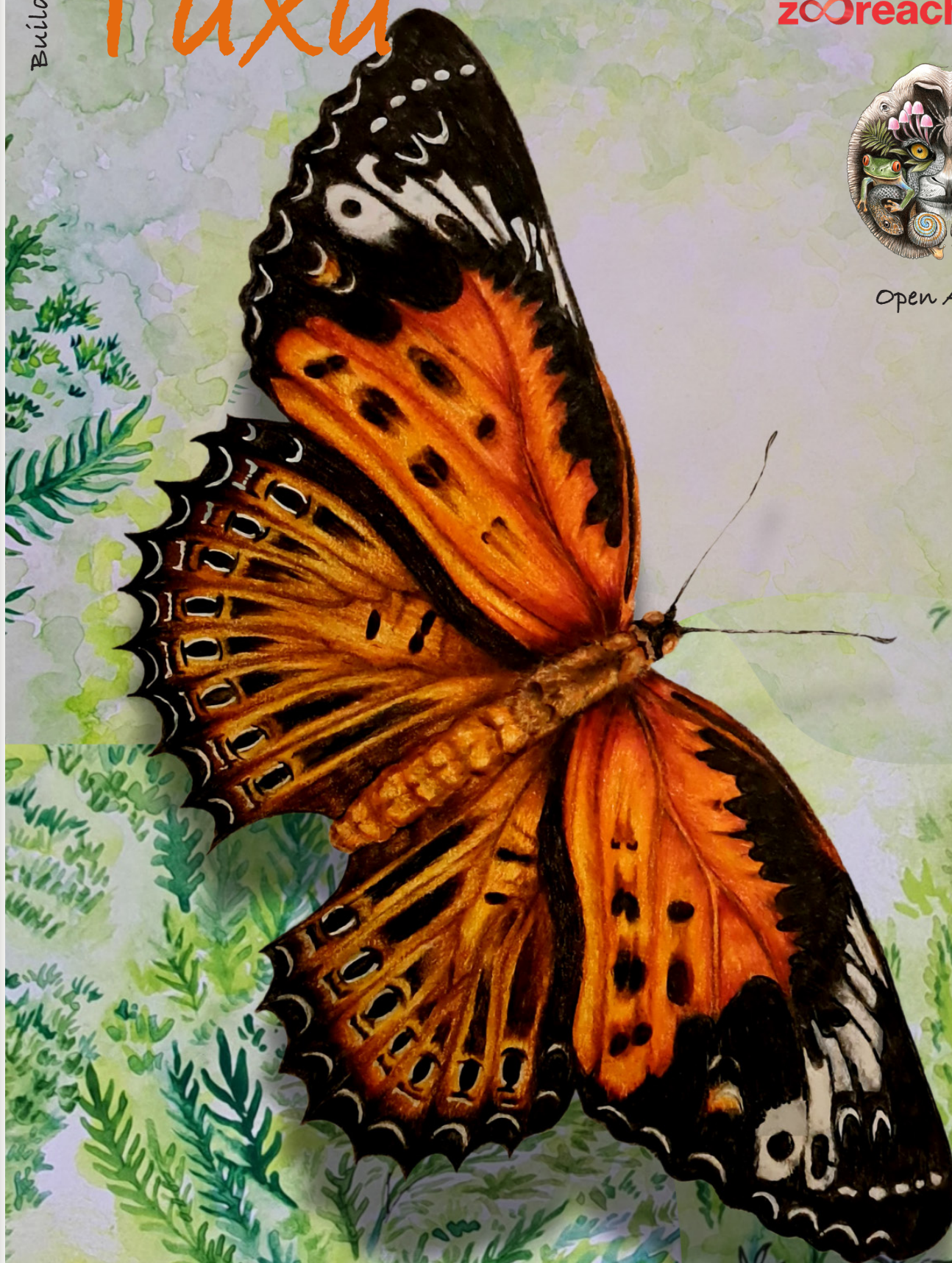
ISSN 0974-7907 (Online)

ISSN 0974-7893 (Print)

zooreach@40



Open Access





ISSN 0974-7907 (Online); ISSN 0974-7893 (Print)

Publisher
Wildlife Information Liaison Development Society
www.wild.zooreach.org

Host
Zoo Outreach Organization
www.zooreach.org

Srivari Illam, No. 61, Karthik Nagar, 10th Street, Saravanampatti, Coimbatore, Tamil Nadu 641035, India
Registered Office: 3A2 Varadarajulu Nagar, FCI Road, Ganapathy, Coimbatore, Tamil Nadu 641006, India
Ph: +91 9385339863 | www.threatenedtaxa.org
Email: sanjay@threatenedtaxa.org

EDITORS

Founder & Chief Editor

Dr. Sanjay Molur

Wildlife Information Liaison Development (WILD) Society & Zoo Outreach Organization (ZOO),
Coimbatore, Tamil Nadu 641006, India

Assistant Editor

Dr. Chaithra Shree J., WILD/ZOO, Coimbatore, Tamil Nadu 641006, India

Managing Editor

Mr. B. Ravichandran, WILD/ZOO, Coimbatore, Tamil Nadu 641006, India

Associate Editors

Dr. Mandar Paingankar, Government Science College Gadchiroli, Maharashtra 442605, India

Dr. Ulrike Streicher, Wildlife Veterinarian, Eugene, Oregon, USA

Ms. Priyanka Iyer, ZOO/WILD, Coimbatore, Tamil Nadu 641006, India

Board of Editors

Dr. Russel Mittermeier

Executive Vice Chair, Conservation International, Arlington, Virginia 22202, USA

Prof. Mewa Singh Ph.D., FASc, FNA, FNAsc, FNAPsy

Ramanna Fellow and Life-Long Distinguished Professor, Biopsychology Laboratory, and
Institute of Excellence, University of Mysore, Mysuru, Karnataka 570006, India; Honorary
Professor, Jawaharlal Nehru Centre for Advanced Scientific Research, Bangalore; and Adjunct
Professor, National Institute of Advanced Studies, Bangalore

Stephen D. Nash

Scientific Illustrator, Conservation International, Dept. of Anatomical Sciences, Health Sciences
Center, T-8, Room 045, Stony Brook University, Stony Brook, NY 11794-8081, USA

Dr. Fred Pluthero

Toronto, Canada

Dr. Priya Davidar

Sigur Nature Trust, Chadapatti, Mavinahalla PO, Nilgiris, Tamil Nadu 643223, India

Dr. John Fellowes

Honorary Assistant Professor, The Kadoorie Institute, 8/F, T.T. Tsui Building, The University of
Hong Kong, Pokfulam Road, Hong Kong

Prof. Dr. Mirco Solé

Universidade Estadual de Santa Cruz, Departamento de Ciências Biológicas, Vice-coordenador
do Programa de Pós-Graduação em Zoologia, Rodovia Ilhéus/Itabuna, Km 16 (45662-000)
Salobrinho, Ilhéus - Bahia - Brasil

Dr. Rajeev Raghavan

Professor of Taxonomy, Kerala University of Fisheries & Ocean Studies, Kochi, Kerala, India

English Editors

Mrs. Mira Bhojwani, Pune, India

Dr. Fred Pluthero, Toronto, Canada

Copy Editors

Ms. Usha Madgunaki, Zooreach, Coimbatore, India

Ms. Trisa Bhattacharjee, Zooreach, Coimbatore, India

Ms. Paloma Noronha, Daman & Diu, India

Web Development

Mrs. Latha G. Ravikumar, ZOO/WILD, Coimbatore, India

Typesetting

Mrs. Radhika, Zooreach, Coimbatore, India

Mrs. Geetha, Zooreach, Coimbatore India

Fundraising/Communications

Mrs. Payal B. Molur, Coimbatore, India

Subject Editors 2021–2023

Fungi

Dr. B. Shivaraju, Bengaluru, Karnataka, India

Dr. R.K. Verma, Tropical Forest Research Institute, Jabalpur, India

Dr. Vatsavaya S. Raju, Kakatiya University, Warangal, Andhra Pradesh, India

Dr. M. Krishnappa, Jnana Sahyadri, Kuvempu University, Shimoga, Karnataka, India

Dr. K.R. Sridhar, Mangalore University, Mangalagangothri, Mangalore, Karnataka, India

Dr. Gunjan Biswas, Vidyasagar University, Midnapore, West Bengal, India

Dr. Kiran Ramchandra Ranadive, Annasaheb Magar Mahavidyalaya, Maharashtra, India

Plants

Dr. G.P. Sinha, Botanical Survey of India, Allahabad, India

Dr. N.P. Balakrishnan, Ret. Joint Director, BSI, Coimbatore, India

Dr. Shonil Bhagwat, Open University and University of Oxford, UK

Prof. D.J. Bhat, Retd. Professor, Goa University, Goa, India

Dr. Ferdinando Boero, Università del Salento, Lecce, Italy

Dr. Dale R. Calder, Royal Ontario Museum, Toronto, Ontario, Canada

Dr. Cleofas Cervancia, Univ. of Philippines Los Baños College Laguna, Philippines

Dr. F.B. Vincent Florens, University of Mauritius, Mauritius

Dr. Merlin Franco, Curtin University, Malaysia

Dr. V. Irudayaraj, St. Xavier's College, Palayamkottai, Tamil Nadu, India

Dr. B.S. Kholia, Botanical Survey of India, Gangtok, Sikkim, India

Dr. Pankaj Kumar, Department of Plant and Soil Science, Texas Tech University, Lubbock, Texas, USA.

Dr. V. Sampath Kumar, Botanical Survey of India, Howrah, West Bengal, India

Dr. A.J. Solomon Raju, Andhra University, Visakhapatnam, India

Dr. Vijayasankar Raman, University of Mississippi, USA

Dr. B. Ravi Prasad Rao, Sri Krishnadevaraya University, Anantpur, India

Dr. K. Ravikumar, FRLHT, Bengaluru, Karnataka, India

Dr. Aparna Watve, Pune, Maharashtra, India

Dr. Qiang Liu, Xishuangbanna Tropical Botanical Garden, Yunnan, China

Dr. Noor Azhar Mohamed Shazili, Universiti Malaysia Terengganu, Kuala Terengganu, Malaysia

Dr. M.K. Vasudeva Rao, Shiv Ranjani Housing Society, Pune, Maharashtra, India

Prof. A.J. Solomon Raju, Andhra University, Visakhapatnam, India

Dr. Mandar Datar, Agharkar Research Institute, Pune, Maharashtra, India

Dr. M.K. Janarthanam, Goa University, Goa, India

Dr. K. Karthikeyan, Botanical Survey of India, India

Dr. Errol Vela, University of Montpellier, Montpellier, France

Dr. P. Lakshminarasimhan, Botanical Survey of India, Howrah, India

Dr. Larry R. Noblick, Montgomery Botanical Center, Miami, USA

Dr. K. Haridasan, Pallavur, Palakkad District, Kerala, India

Dr. Analinda Manila-Fajard, University of the Philippines Los Banos, Laguna, Philippines

Dr. P.A. Sinu, Central University of Kerala, Kasaragod, Kerala, India

Dr. Afroz Alam, Banasthali Vidyapith (accredited A grade by NAAC), Rajasthan, India

Dr. K.P. Rajesh, Zamorin's Guruvayurappan College, GA College PO, Kozhikode, Kerala, India

Dr. David E. Boufford, Harvard University Herbaria, Cambridge, MA 02138-2020, USA

Dr. Ritesh Kumar Choudhary, Agharkar Research Institute, Pune, Maharashtra, India

Dr. A.G. Pandurangan, Thiruvananthapuram, Kerala, India

Dr. Navendu Page, Wildlife Institute of India, Chandrabani, Dehradun, Uttarakhand, India

Dr. Kannan C.S. Warriar, Institute of Forest Genetics and Tree Breeding, Tamil Nadu, India

Invertebrates

Dr. R.K. Avasthi, Rohtak University, Haryana, India

Dr. D.B. Bastawade, Maharashtra, India

Dr. Partha Pratim Bhattacharjee, Tripura University, Suryamaninagar, India

Dr. Kailash Chandra, Zoological Survey of India, Jabalpur, Madhya Pradesh, India

Dr. Ansie Dippenaar-Schoeman, University of Pretoria, Queenswood, South Africa

Dr. Rory Dow, National Museum of natural History Naturalis, The Netherlands

Dr. Brian Fisher, California Academy of Sciences, USA

Dr. Richard Gallon, Llandudno, North Wales, LL30 1UP

Dr. Hemant V. Ghate, Modern College, Pune, India

Dr. M. Monwar Hossain, Jahangirnagar University, Dhaka, Bangladesh

For Focus, Scope, Aims, and Policies, visit https://threatenedtaxa.org/index.php/JoTT/aims_scope
For Article Submission Guidelines, visit <https://threatenedtaxa.org/index.php/JoTT/about/submissions>
For Policies against Scientific Misconduct, visit https://threatenedtaxa.org/index.php/JoTT/policies_various

continued on the back inside cover

Cover: Tamil Lacewing *Cethosia nietneri* with colour pencils and watercolours for the background; detailing with fine liners by Elakshi Mahika Molur.



Invasive record of Brazilian Petunia *Ruellia elegans* Poir. (Acanthaceae) from northeastern India

Mamita Kalita

Department of Botany, Digboi College (Autonomous), Digboi, Assam 786171, India.
mamita.bot@gmail.com

Abstract: The present study reports the invasive occurrence of *Ruellia elegans* Poir. from northeastern India. The beautiful red flowered species flourishing in Digboi, Assam is marked as its new distribution extension. The occurrence has been documented as a new distribution record for the flora of Assam as well as northeastern India. A detailed morphological depiction, photographic images, characterization and taxonomic notes have been provided to aid in its identification and recognition.

Keywords: Assam, biodiversity, conservation, distribution record, flora, floral attributes, identification, morphology, native, taxonomy, threatening.

The Brazilian Petunia *Ruellia elegans* Poir. belongs to a morphologically diversified tribe *Ruellieae* Dumortier. According to Angiosperm Phylogeny Group (APG), *Ruellieae* appertain in the sub-family *Acanthoideae* Eaton of family *Acanthaceae* Jussieu nom. cons. (Stevens 2001 onwards). As stated in Plants of World Online (POWO 2024) database, *Acanthaceae* contributes 208 genera and is one of the diverse plant families with estimation of approximately 4,900 species (Manzitto-Tripp et. al. 2021). Members of the genus *Ruellia* Plum. ex. L. are mostly herbs, shrubs, rarely trees or lianas (Tripp 2007). The genus is horticulturally important having 350 species (Tripp et. al. 2013). However, according to POWO (2024), the genus is portrayed with 365 species distributed in tropics to subtropics to North America. As mentioned by

Tripp (2007), the species of *Ruellia* exhibit remarkable diversity in floral color, size and shape of corolla lobes, tubes, throat. According to Zhuang & Manzitto-Tripp (2022), the genus *Ruellia* manifests diversification in floral color due to anthocyanin biosynthetic pathway (ABP) and *R. elegans* was characterized with both pelargonidin and cyanidin pigments. The species *R. elegans* Poir. is native to northern, northeastern, and southeastern Brazil, predominantly thriving in wet tropical biome. Further, it has been introduced in regions of Andaman Islands, Puerto Rico, and Jamaica (POWO 2024).

In accord with POWO (2024), India is represented with six native species of *Ruellia* viz., *R. beddomei* C.B. Clarke., *R. ciliata* Hornem., *R. malabarica* Kostel., *R. patula* Jacq., *R. pseudopatula* Ensermu., *R. sibua* (Nees) I.M. Turner., and *R. sivarajanii* Sreedevi, Remadevi & Binojk. Whereas, *R. ciliatiflora* Hook., *R. simplex* C.Wright., *R. tuberosa* L. are non-native and introduced species of India. *R. elegans* is an indigenous species of Brazil (north-east, south, south-east) and introduced in the regions of Andaman Islands, Jamaica, and Puerto Rico. However, the species existence has been marked from Odisha, as a new recorded distribution for eastern India (Kalidass et. al. 2016). According to Ezcurra (1993), the species distribution has extended due to human activities.

Editor: K. Haridasan, Palakkad, Kerala, India.

Date of publication: 26 February 2025 (online & print)

Citation: Kalita, M. (2025). Invasive record of Brazilian Petunia *Ruellia elegans* Poir. (Acanthaceae) from northeastern India. *Journal of Threatened Taxa* 17(2): 26562–26565. <https://doi.org/10.11609/jott.9213.17.2.26562-26565>

Copyright: © Kalita 2025. Creative Commons Attribution 4.0 International License. JoTT allows unrestricted use, reproduction, and distribution of this article in any medium by providing adequate credit to the author(s) and the source of publication.

Funding: None.

Competing interests: The author declares no competing interests.

Acknowledgements: The author is thankful to the Herbarium Curator of GUBH.



MATERIALS AND METHODS

On 19 September 2023, the specimen has been allocated from the vicinity of Dehing Patkai rainforest of Digboi, Assam. Field photographs and GPS location were recorded with help of Canon IXUS 190. The vegetative and reproductive features of the collected specimen were examined through a stereo-zoom binocular microscope (Labomed CZM4). The identity of the species was confirmed through its protologue, and herbarium records. The photoplates were prepared using Adobe Photoshop software (version 7.0). The voucher specimen has been prepared following the protocol of Jain & Rao (1977) and deposited at Gauhati University Botanical Herbarium (GUBH). The map depicting the location of *Ruellia elegans* collected from Tinsukia District of Assam has been shown (Figure 1).

Taxonomic Treatment

***Ruellia elegans* Poir.** in J.B.A.M.de Lamarck, Encycl., Suppl. 4: 727.1816. – *Ruellia formosa* Andrews in Bot. Repos. 10:t.610.1810. nom. illeg. – *Ruellia superba* D. Dietr. in Nachtr. Vollst. Lex. Gärt. 17:307.1821. –

Arrhostoxylum formosum Nees in A.P. de Candolle, Prodr. 11:215.1847. – *Arrhostoxylum roseum* Nees in C.F.P. von Martius & auct. suc. (eds.), Fl. Bras. 9:61.1847. – *Arrhostoxylum silvaccola* var. *montanum* Nees in C.F.P. von Martius & auct. suc. (eds.), Fl. Bras. 9:60.1847. – *Ruellia speciosa* Mart. ex Nees in A.P. de Candolle, Prodr. 11: 215.1847. – *Asystasia formosa* T. Anderson in J. Agric. Soc. India, n.s., 1: 270.1868. – *Stemonacanthus formosus* T. Anderson in J. Agric. Soc. India, n.s., 1: 270.1868. – *Ruellia rosea* (Nees) W. Bull in Nursery Cat. (William Bull) 143:8.1878. – *Arrhostoxylum elegans* (Poir.) Bremek. & Nann. Bremek. in Verh. Kon. Ned. Akad. Wetensch., Afd. Natuurk., Sect. 2, 45(1):12.1948.

Description

Annual erect herbs, 30–60 cm tall, ascending, sparsely branched, pubescent, quadrangular; Leaves 4–10 × 2–4 cm in size, acuminate, simple, entire, elliptic-oblong, coriaceous, cuneate base, sparsely pubescent adaxially, glabrous abaxially, exstipulate, petiole 1–2 cm long, flat, slender, pubescent; Inflorescence axillary, arising from upper leaves, raceme, 12–15 cm long, few

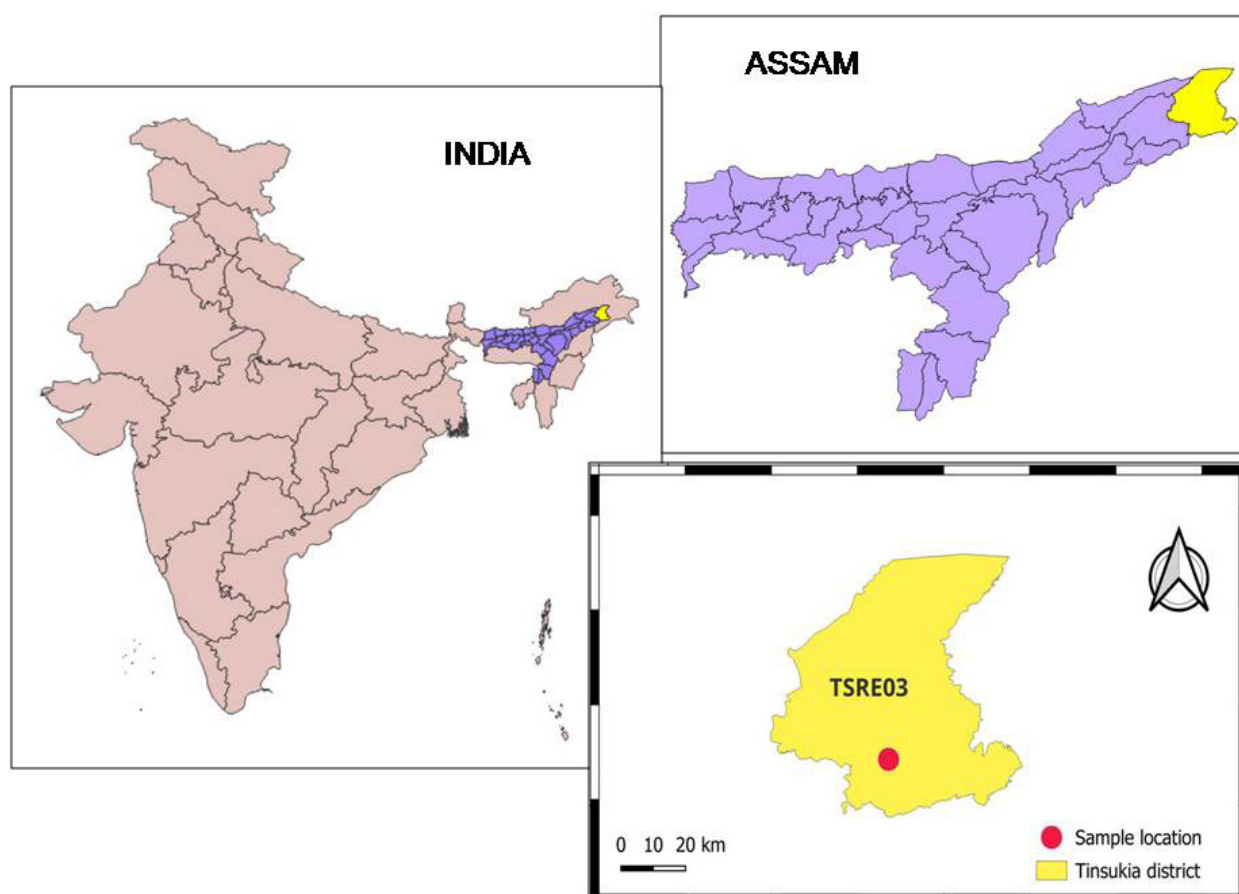


Figure 1. Geographic location of *Ruellia elegans* Poir. in Tinsukia District of Assam (Map prepared through QGIS software 3.40.0).

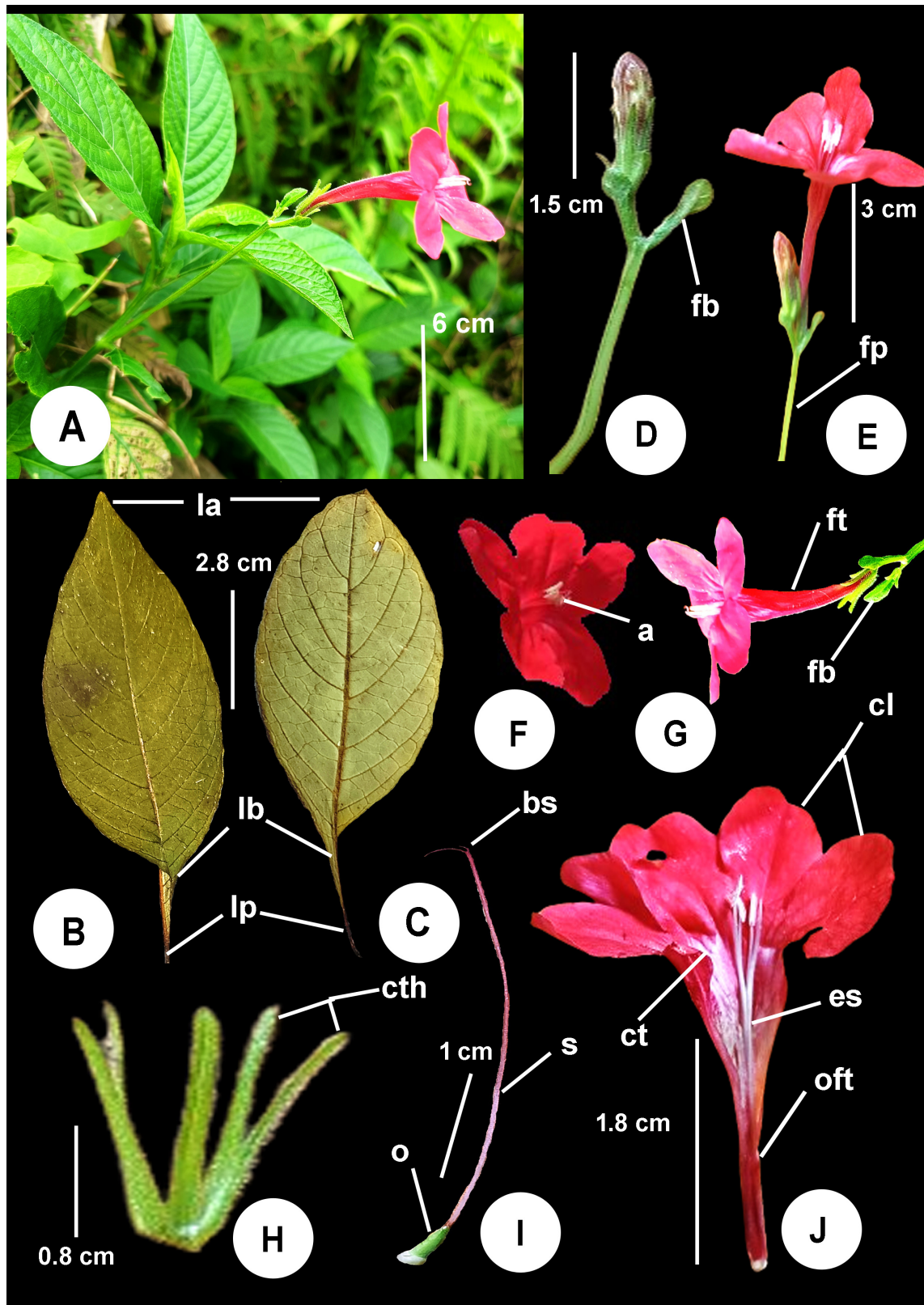


Image 1. *Ruellia elegans* Poir.: A—habit of the plant | B—adaxial side of the leaf surface | C—abaxial leaf surface showing leaf apex (la), leaf base (lb) and petiole (lp) | D—flower bud with floral bract (fb) | E—complete flower displayed on its floral pedicel (fp) | F—frontal view of the flower exhibiting anthers (a) | G—side view of the flower portraying floral tube (ft) and floral bract (fb) | H—calyx displaying five tooth (cth) | I—gynoecium with ovary (o), style (s) and bifid stigma (bs) | J—dissected corolla manifesting open floral tube (oft), epipetalous stamen (es), corolla lobes (cl) and corolla throat (ct). © Mamita Kalita.

flowered; Bract spatulate, pubescent, 0.8–1.2 × 0.4–0.6 cm; Flower pedicellate, bright red trumpet shaped, 4–5.5 cm long, bisexual, regular; Calyx 1.5–1.8 cm, five sepals, valvate, green, woolly, unequal lobes, united at base; Corolla with five petals, 1–1.5 cm segregated limbs above, lower part united to form 3–4 cm long floral tube, throat curved, pink-white patch inside, minutely hirsute outside, peduncle 0.5–1 cm long; Stamens 4, didynamous, 3.2–3.8 cm long, anthers white, 2.5–3 mm long, sub-extrorse, versatile, ditheous; Gynoecium 3.8–4 cm long, stigma bifid, pink, style pinkish white, ovary 2.8–3.7 mm, elliptic, glabrous, ovary disc 0.8–1 mm, cream-white. (Image 1)

Common names: Brazilian Petunia, Christmas pride, Elegant Ruellia, Red Ruellia, Wild Petunia.

Habitat: Terrestrial species found in high rainfall regions in wild or semi-wild patches/ margins of forest. Also, it grows well in understory of forests where partial sunlight falls.

Phenology: The flowering and fruiting has been observed during September.

Specimen examined

Brazil: South Brazil, Prov. St. Paul and Rio, Leg. Weir, J. 1861–62. #s.n. (K001048032! K001048033!); Environs de Rio de Janeiro et D'Ouro Preto, Leg. Moss A. Glaziou, v.1885. Coll.No.15297 (K001048034!); São Paulo, Leg. M. Kuhlman, 13.xi.1947. Coll.No.1518 (K001048038!); Minas Gerais, 20.3294°S, 46.3052°W, altitude 780 m, Leg. Souza, V.C. 14.i.1994. Coll.No.5059 (K001048037!); Near Rio, Leg. Graham. #s.n. (K001048035!) Determined by C. Kameyama, 1995; São Paulo, Leg. M. Groppo Jr. 26.ii.2001. Coll.No.595 (K001048036!). **India:** Andaman & Nicobar Islands, Port Blair, Nayagaon, South Andamans, Dr. S. Kumar, 15.iii.2008. Coll.No.26343 (PBL0000015227! PBL0000015228!). **Assam:** Tinsukia, Digboi, Near Dehing Patkai WS, Mamita Kalita, 19.ix.2023. Coll.No. TSRE03 (GUBH20634).

Taxonomic note

The specific epithet '*elegans*' propound the pleasing appearance or bounteous nature of the species. The herbarium specimen (K001048032, K001048033, K001048038) were initially identified as *Ruellia formosa* and (K001048032, K001048033, K001048034, K001048035) as *Arrhoxystylum formosum*. Later, the correct identification was provided as *Ruellia elegans* and the former two names are now treated as synonyms. A write up over the herbarium sheet K001048035 describe the species as plants with bright red flowers having four

anthers (two long and two short ones). As mentioned by Ezcurra (1993), the calyx and corolla morphology of *R. elegans* is somewhat similar to *R. sceptum-marianum* (Vell.) Stearn., and *R. acutangula* Nees, *R. silvacola* (Nees) Lindau. Further, he described the species as red flowers having horizontal corolla forming a narrow tube with weak peduncles and pedicels. The presently examined species have similar floral attributes as described.

CONCLUSION

At the location site, altogether 8–10 individuals of the plant species were seen, each differing in their reproductive growth. Few other species growing along with *Ruellia elegans* are: *Diplazium* sp., *Dryopteris* sp., *Isodon* sp., *Oxalis debilis*, *Plantago major*, and *Rostellularia* sp. According to Rao & Kumar (2024), the species conservation status is not assessed in Brazil. The impacts of this invasive species should be monitored to take appropriate measures to control its spread threatening the native biodiversity.

REFERENCES

- Ezcurra, C. (1993). Systematics of *Ruellia* (Acanthaceae) in Southern South America. *Annals of the Missouri Botanical Garden* 80(4): 787–845. <https://doi.org/10.2307/2399931>
- Jain, S.K. & R.R. Rao (1977). *Handbook of Field and Herbarium Methods*. Today and Tomorrow Printers and Publishers, New Delhi, India, 150 pp.
- Kalidass, C., P. Murugan & P.C. Panda (2016). *Ruellia elegans* Poir. (Acanthaceae): A new plant record for Eastern India. *Plant Science Research* 38(1&2): 118–119.
- Lamarck, J.B. & J.L.M. Poiret (1816). *Encyclopédie méthodique. Botanique, Supplement*. Paris, Agasse. 4: 727 pp. <https://doi.org/10.5962/bhl.title.826>
- Manzitto-Tripp, E.A., I. Darbyshire, T.F. Daniel, C.A. Kiel & L.A. McDade (2021). Revised classification of Acanthaceae and worldwide dichotomous keys. *TAXON* 71(5): 103–153. <https://doi.org/10.1002/tax.12600>
- POWO (2024). Facilitated by the Royal Botanic Gardens, Kew. Published on the Internet. Accessed on 25/09/2023. <https://powo.science.kew.org/>
- Rao, K.S. & D. Kumar (2024). India Flora Online. Published on the Internet; <https://indiaflora-ces.iisc.ac.in/>
- Stevens, P.F. (2001 onwards). APG IV. Angiosperm Phylogeny Website. Version14, July 2017. <http://www.mobot.org/MOBOT/research/APweb/>
- Tripp, E.A. (2007). Evolutionary relationships within the species-rich genus *Ruellia* (Acanthaceae). *Systematic Botany* 32(3):628–649. <https://doi.org/10.1600/036364407782250625>
- Tripp, E.A., T.F. Daniel, S. Fatimah & L.A. McDade (2013). Phylogenetic Relationships within *Ruellieae* (Acanthaceae) and a Revised Classification. *International Journal of Plant Sciences* 174(1): 97–137. <https://doi.org/10.1086/668248>
- Zhuang, Y. & E.A. Manzitto-Tripp (2022). Co-expression network analyses of anthocyanin biosynthesis genes in *Ruellia* (Wild Petunias; Acanthaceae). *BMC Ecology and Evolution* 22(27): 1–17. <https://doi.org/10.1186/s12862-021-01955-x>

Mr. Jatishwor Singh Irungbam, Biology Centre CAS, Branišovská, Czech Republic.
Dr. Ian J. Kitching, Natural History Museum, Cromwell Road, UK
Dr. George Mathew, Kerala Forest Research Institute, Peechi, India
Dr. John Noyes, Natural History Museum, London, UK
Dr. Albert G. Orr, Griffith University, Nathan, Australia
Dr. Sameer Padhye, Katholieke Universiteit Leuven, Belgium
Dr. Nancy van der Poorten, Toronto, Canada
Dr. Kareen Schnabel, NIWA, Wellington, New Zealand
Dr. R.M. Sharma, (Retd.) Scientist, Zoological Survey of India, Pune, India
Dr. Manju Siliwal, WILD, Coimbatore, Tamil Nadu, India
Dr. G.P. Sinha, Botanical Survey of India, Allahabad, India
Dr. K.A. Subramanian, Zoological Survey of India, New Alipore, Kolkata, India
Dr. P.M. Sureshan, Zoological Survey of India, Kozhikode, Kerala, India
Dr. R. Varatharajan, Manipur University, Imphal, Manipur, India
Dr. Eduard Vives, Museu de Ciències Naturals de Barcelona, Terrassa, Spain
Dr. James Young, Hong Kong Lepidopterists' Society, Hong Kong
Dr. R. Sundararaj, Institute of Wood Science & Technology, Bengaluru, India
Dr. M. Nithyanandan, Environmental Department, La Ala Al Kuwait Real Estate. Co. K.S.C., Kuwait
Dr. Himender Bharti, Punjabi University, Punjab, India
Mr. Purnendu Roy, London, UK
Dr. Saito Motoki, The Butterfly Society of Japan, Tokyo, Japan
Dr. Sanjay Sondhi, TITLI TRUST, Kalpavriksh, Dehradun, India
Dr. Nguyen Thi Phuong Lien, Vietnam Academy of Science and Technology, Hanoi, Vietnam
Dr. Nitin Kulkarni, Tropical Research Institute, Jabalpur, India
Dr. Robin Wen Jiang Ngiam, National Parks Board, Singapore
Dr. Lionel Monod, Natural History Museum of Geneva, Genève, Switzerland.
Dr. Asheesh Shivam, Nehru Gram Bharti University, Allahabad, India
Dr. Rosana Moreira da Rocha, Universidade Federal do Paraná, Curitiba, Brasil
Dr. Kurt R. Arnold, North Dakota State University, Saxony, Germany
Dr. James M. Carpenter, American Museum of Natural History, New York, USA
Dr. David M. Claborn, Missouri State University, Springfield, USA
Dr. Kareen Schnabel, Marine Biologist, Wellington, New Zealand
Dr. Amazonas Chagas Júnior, Universidade Federal de Mato Grosso, Cuiabá, Brasil
Mr. Monsoon Jyoti Gogoi, Assam University, Silchar, Assam, India
Dr. Heo Chong Chin, Universiti Teknologi MARA (UiTM), Selangor, Malaysia
Dr. R.J. Shiel, University of Adelaide, SA 5005, Australia
Dr. Siddharth Kulkarni, The George Washington University, Washington, USA
Dr. Priyadarsanan Dharma Rajan, ATREE, Bengaluru, India
Dr. Phil Alderslade, CSIRO Marine And Atmospheric Research, Hobart, Australia
Dr. John E.N. Veron, Coral Reef Research, Townsville, Australia
Dr. Daniel Whitmore, State Museum of Natural History Stuttgart, Rosenstein, Germany.
Dr. Yu-Feng Hsu, National Taiwan Normal University, Taipei City, Taiwan
Dr. Keith V. Wolfe, Antioch, California, USA
Dr. Siddharth Kulkarni, The Hormiga Lab, The George Washington University, Washington, D.C., USA
Dr. Tomas Ditrich, Faculty of Education, University of South Bohemia in Ceske Budejovice, Czech Republic
Dr. Mihaly Foldvari, Natural History Museum, University of Oslo, Norway
Dr. V.P. Uniyal, Wildlife Institute of India, Dehradun, Uttarakhand 248001, India
Dr. John D.L. Caleb, Zoological Survey of India, Kolkata, West Bengal, India
Dr. Priyadarsanan Dharma Rajan, Ashoka Trust for Research in Ecology and the Environment (ATREE), Royal Enclave, Bangalore, Karnataka, India

Fishes

Dr. Topiltzin Contreras MacBeath, Universidad Autónoma del estado de Morelos, México
Dr. Heok Hee Ng, National University of Singapore, Science Drive, Singapore
Dr. Rajeev Raghavan, St. Albert's College, Kochi, Kerala, India
Dr. Robert D. Sluka, Chiltern Gateway Project, A Rocha UK, Southall, Middlesex, UK
Dr. E. Vivekanandan, Central Marine Fisheries Research Institute, Chennai, India
Dr. Davor Zanella, University of Zagreb, Zagreb, Croatia
Dr. A. Biju Kumar, University of Kerala, Thiruvananthapuram, Kerala, India
Dr. Akhilesh K.V., ICAR-Central Marine Fisheries Research Institute, Mumbai Research Centre, Mumbai, Maharashtra, India
Dr. J.A. Johnson, Wildlife Institute of India, Dehradun, Uttarakhand, India
Dr. R. Ravinesh, Gujarat Institute of Desert Ecology, Gujarat, India

Amphibians

Dr. Sushil K. Dutta, Indian Institute of Science, Bengaluru, Karnataka, India
Dr. Annemarie Ohler, Muséum national d'Histoire naturelle, Paris, France

Reptiles

Dr. Gernot Vogel, Heidelberg, Germany
Dr. Raju Vyas, Vadodara, Gujarat, India
Dr. Pritpal S. Soorae, Environment Agency, Abu Dhabi, UAE.
Prof. Dr. Wayne J. Fuller, Near East University, Mersin, Turkey
Prof. Chandrashekhar U. Rivonker, Goa University, Taleigao Plateau, Goa. India
Dr. S.R. Ganesh, Chennai Snake Park, Chennai, Tamil Nadu, India
Dr. Himansu Sekhar Das, Terrestrial & Marine Biodiversity, Abu Dhabi, UAE

Birds

Dr. Hem Sagar Baral, Charles Sturt University, NSW Australia
Mr. H. Byju, Coimbatore, Tamil Nadu, India
Dr. Chris Bowden, Royal Society for the Protection of Birds, Sandy, UK
Dr. Priya Davidar, Pondicherry University, Kalapet, Puducherry, India
Dr. J.W. Duckworth, IUCN SSC, Bath, UK
Dr. Rajah Jayapal, SAGON, Coimbatore, Tamil Nadu, India
Dr. Rajiv S. Kalsi, M.L.N. College, Yamuna Nagar, Haryana, India
Dr. V. Santharam, Rishi Valley Education Centre, Chittoor Dt., Andhra Pradesh, India
Dr. S. Balachandran, Bombay Natural History Society, Mumbai, India
Mr. J. Praveen, Bengaluru, India
Dr. C. Srinivasulu, Osmania University, Hyderabad, India
Dr. K.S. Gopi Sundar, International Crane Foundation, Baraboo, USA
Dr. Gombobaatar Sunde, Professor of Ornithology, Ulaanbaatar, Mongolia
Prof. Reuven Yosef, International Birding & Research Centre, Eilat, Israel
Dr. Taej Mundkur, Wetlands International, Wageningen, The Netherlands
Dr. Carol Inskipp, Bishop Auckland Co., Durham, UK
Dr. Tim Inskipp, Bishop Auckland Co., Durham, UK
Dr. V. Gokula, National College, Tiruchirappalli, Tamil Nadu, India
Dr. Arkady Lelej, Russian Academy of Sciences, Vladivostok, Russia
Dr. Simon Dowell, Science Director, Chester Zoo, UK
Dr. Mário Gabriel Santiago dos Santos, Universidade de Trás-os-Montes e Alto Douro, Quinta de Prados, Vila Real, Portugal
Dr. Grant Connette, Smithsonian Institution, Royal, VA, USA
Dr. P.A. Azeez, Coimbatore, Tamil Nadu, India

Mammals

Dr. Giovanni Amori, CNR - Institute of Ecosystem Studies, Rome, Italy
Dr. Anwaruddin Chowdhury, Guwahati, India
Dr. David Mallon, Zoological Society of London, UK
Dr. Shomita Mukherjee, SAGON, Coimbatore, Tamil Nadu, India
Dr. Angie Appel, Wild Cat Network, Germany
Dr. P.O. Nameer, Kerala Agricultural University, Thrissur, Kerala, India
Dr. Ian Redmond, UNEP Convention on Migratory Species, Lansdown, UK
Dr. Heidi S. Riddle, Riddle's Elephant and Wildlife Sanctuary, Arkansas, USA
Dr. Karin Schwartz, George Mason University, Fairfax, Virginia.
Dr. Lala A.K. Singh, Bhubaneswar, Orissa, India
Dr. Mewa Singh, Mysore University, Mysore, India
Dr. Paul Racey, University of Exeter, Devon, UK
Dr. Honnavalli N. Kumara, SAGON, Anaikatty P.O., Coimbatore, Tamil Nadu, India
Dr. Nishith Dharaiya, HNG University, Patan, Gujarat, India
Dr. Spartaco Gippoliti, Socio Onorario Società Italiana per la Storia della Fauna "Giuseppe Altobello", Rome, Italy
Dr. Justus Joshua, Green Future Foundation, Tiruchirappalli, Tamil Nadu, India
Dr. H. Raghuram, The American College, Madurai, Tamil Nadu, India
Dr. Paul Bates, Harison Institute, Kent, UK
Dr. Jim Sanderson, Small Wild Cat Conservation Foundation, Hartford, USA
Dr. Dan Challender, University of Kent, Canterbury, UK
Dr. David Mallon, Manchester Metropolitan University, Derbyshire, UK
Dr. Brian L. Cypher, California State University-Stanislaus, Bakersfield, CA
Dr. S.S. Talmale, Zoological Survey of India, Pune, Maharashtra, India
Prof. Karan Bahadur Shah, Budhanilakantha Municipality, Kathmandu, Nepal
Dr. Susan Cheyne, Borneo Nature Foundation International, Palangkaraja, Indonesia
Dr. Hemanta Kafley, Wildlife Sciences, Tarleton State University, Texas, USA

Other Disciplines

Dr. Aniruddha Belsare, Columbia MO 65203, USA (Veterinary)
Dr. Mandar S. Paingankar, University of Pune, Pune, Maharashtra, India (Molecular)
Dr. Jack Tordoff, Critical Ecosystem Partnership Fund, Arlington, USA (Communities)
Dr. Ulrike Streicher, University of Oregon, Eugene, USA (Veterinary)
Dr. Hari Balasubramanian, EcoAdvisors, Nova Scotia, Canada (Communities)
Dr. Rayanna Hellem Santos Bezerra, Universidade Federal de Sergipe, São Cristóvão, Brazil
Dr. Jamie R. Wood, Landcare Research, Canterbury, New Zealand
Dr. Wendy Collinson-Jonker, Endangered Wildlife Trust, Gauteng, South Africa
Dr. Rajeshkumar G. Jani, Anand Agricultural University, Anand, Gujarat, India
Dr. O.N. Tiwari, Senior Scientist, ICAR-Indian Agricultural Research Institute (IARI), New Delhi, India
Dr. L.D. Singla, Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana, India
Dr. Rupika S. Rajakaruna, University of Peradeniya, Peradeniya, Sri Lanka
Dr. Bahar Baviskar, Wild-CER, Nagpur, Maharashtra 440013, India

Reviewers 2021–2023

Due to pausity of space, the list of reviewers for 2021–2023 is available online.

The opinions expressed by the authors do not reflect the views of the Journal of Threatened Taxa, Wildlife Information Liaison Development Society, Zoo Outreach Organization, or any of the partners. The journal, the publisher, the host, and the partners are not responsible for the accuracy of the political boundaries shown in the maps by the authors.

Print copies of the Journal are available at cost. Write to:
The Managing Editor, JoTT,
c/o Wildlife Information Liaison Development Society,
3A2 Varadarajulu Nagar, FCI Road, Ganapathy, Coimbatore,
Tamil Nadu 641006, India
ravi@threatenedtaxa.org & ravi@zooreach.org

Journal of Threatened Taxa is indexed/abstracted in Bibliography of Systematic Mycology, Biological Abstracts, BIOSIS Previews, CAB Abstracts, EBSCO, Google Scholar, Index Copernicus, Index Fungorum, JournalSeek, National Academy of Agricultural Sciences, NewJour, OCLC WorldCat, SCOPUS, Stanford University Libraries, Virtual Library of Biology, Zoological Records.

NAAS rating (India) 5.64



www.threatenedtaxa.org

OPEN ACCESS



The Journal of Threatened Taxa (JoTT) is dedicated to building evidence for conservation globally by publishing peer-reviewed articles online every month at a reasonably rapid rate at www.threatenedtaxa.org. All articles published in JoTT are registered under [Creative Commons Attribution 4.0 International License](https://creativecommons.org/licenses/by/4.0/) unless otherwise mentioned. JoTT allows unrestricted use, reproduction, and distribution of articles in any medium by providing adequate credit to the author(s) and the source of publication.

ISSN 0974-7907 (Online) | ISSN 0974-7893 (Print)

February 2025 | Vol. 17 | No. 2 | Pages: 26443–26570

Date of Publication: 26 February 2025 (Online & Print)

DOI: 10.11609/jott.2025.17.2.26443-26570

Articles

Culture and provisioning: the case of Human-Long-tailed Macaque *Macaca fascicularis* (Raffles, 1821) interactions in Sumile, Butuan City, Philippines

– Fritche H. Lapore, Debbie S. Aseñas & Sherryl L. Paz, Pp. 26443–26458

Noteworthy comments on birds for mega-diverse Myanmar

– Swen C. Renner, Saw Moses, Lay Win, Thein Aung, Myint Kyaw, Saw Myat Ohnmar, Thiri Dae We Aung, Kay Thwe Myint, Sai Sein Lin Oo, Paul J.J. Bates & Marcela Suarez-Rubio, Pp. 26459–26467

Ultra-structure of antenna, eye, mouthparts and sensilla of *Cheilomenes sexmaculata* Fabricius, 1781 (Coccinellidae: Coleoptera)

– Prakash Ghagargunde & Mandar S. Paingankar, Pp. 26468–26478

Morphological characterization and ecological insights of *Pseudonapaeus* cf. *candelaris* (L. Pfeiffer, 1846) in the Pir Panjal Range of western Himalaya

– Hilal Ahmed, Imtiaz Ahmed & N.A. Aravind, Pp. 26479–26486

Communications

Diet and nutrient balance of wild Asian Elephants *Elephas maximus* in Nepal

– Raj Kumar Koirala & Sean C.P. Coogan, Pp. 26487–26493

Avian diversity in wetlands of southwestern Kerala of India during COVID

– Vijayakumari Sudhakaran Bindu & S. Sajitha, Pp. 26494–26503

Checklist on the ichthyofaunal resources and conservation status of Dikhu River, Nagaland, India

– Metevinu Kechu & Pranay Punj Pankaj, Pp. 26504–26514

A study on the diversity of butterflies in selected landscapes of the Indian Institute of Technology, Guwahati campus, Assam, India

– Uma Dutta, Sonali Dey & Deepshikha Moran, Pp. 26515–26529

Sphaeroma taborans sp. nov., a new species of wood-boring isopod (Crustacea: Isopoda: Sphaeromatidae) from Munroe Island, Ashtamudi Estuary, Kerala, India

– M.S. Arya, A. Biju & Dani Benchamin, P. 26530–26537

A report on Conidae (Gastropoda) from the Karnataka coast – distribution and shell morphometry

– B.S. Chandan, R. Shyama Prasad Rao & Mohammed S. Mustak, Pp. 26538–26546

New distribution record and DNA barcoding of the steno-endemic plant *Cordia diffusa* (Boraginaceae)

– M. Haritha, D. Leena Lavanya & H. Abinaya, Pp. 26547–26552

Short Communications

First record of the sea slug *Lobiger serradifalci* (Calcara, 1840) (Gastropoda: Sacoglossa: Oxynoidae) from the Indian coast

– Dimpal Dodiya & Paresh Poriya, Pp. 26553–26557

Impatiens damrongii (Balsaminaceae), a new record for the flora of Vietnam

– Ha Van Dang, Leonid Vladimirovich Averyanov & Cuong Huu Nguyen, Pp. 26558–26561

Invasive record of Brazilian Petunia *Ruellia elegans* Poir. (Acanthaceae) from northeastern India

– Mamita Kalita, Pp. 26562–26565

Note

Cuphea carthagenensis (Jacq.) J.F. Macbr. (Lythraceae)

— a new non-native plant record for the Eastern Ghats of India

– Prabhat Kumar Das, Bishal Kumar Majhi, Shashi Sourav Hansda, Samarendra Narayan Mallick, Purnendu Panda & Pratap Chandra Panda, Pp. 26566–26570

Publisher & Host



Threatened Taxa