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Authors: Zamani, Alireza, Marusik, Yuri M., Soofi, Mahmood, Koponen, Seppo, Caleb, John T. D., et al.

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First record of *Poltys nagpurensis* (Araneae: Araneidae) from Iran

Alireza Zamani, Yuri M. Marusik, Mahmood Soofi, Seppo Koponen,
John T. D. Caleb & Anna Šestáková



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Abstract. A female specimen of *Poltys* (Araneidae) is reported from southern Iran, representing the first record of the genus for the whole Middle East and its westernmost record in the entire Asian region. The specimen was identified as *Poltys nagpurensis* Tikader, 1982, previously known only from central and western India. Since the Iranian specimen differs in habitus morphology (but not in the epigyne), a brief description and comparison to the holotype with photos of the habitus and copulatory organs are provided.

Keywords: Aranei, fauna, India, orb-weaver spider

Zusammenfassung. Erstnachweis von *Poltys nagpurensis* (Araneae: Araneidae) im Iran. Es wird der Fund eines Weibchens der Gattung *Poltys* (Araneidae) aus dem Südiran berichtet. Es ist der Erstnachweis der Gattung im Nahen Osten und der westlichste in ganz Asien. Das Exemplar wurde als *Poltys nagpurensis* Tikader, 1982 bestimmt, die bisher nur aus dem mittleren und westlichen Indien bekannt war. Da das iranische Exemplar sich morphologisch leicht unterscheidet (aber nicht in der Epigyne) wird es kurz beschrieben und Habitus und Epigyne mit dem Holotypus verglichen.

Araneidae is the second largest spider family with 3130 extant species in 174 genera (WSC 2018). Some genera, like *Poltys* C. L. Koch, 1843, have interesting opisthosomal modifications, which helps them camouflage themselves within twigs and tree bark. Species of the genus *Poltys* can be recognized by the widely separated lateral eyes and a pear-shaped carapace (Smith 2006). They are typical nocturnal spiders, resting motionless during the day, with legs kept close to the prosoma, which makes them difficult to spot (Smith 2006, Kulkarni & Smith 2013). Currently, this genus comprises 43 accepted species, which are mainly distributed from western Africa through to Japan, with a few species known from Australia, whilst the majority of species occur in Southeast Asia (WSC 2018). Most authors have placed this genus in the tribe Poltyini, within the subfamily Araneinae (Smith 2005).

Recently, we were able to study a specimen belonging to this genus from southern Iran, and identified it as *Poltys nagpurensis* Tikader, 1982. This species was originally described on the basis of a female specimen from Nagpur, Maharashtra, India (Tikader 1982). Here, we provide a redescription of the species based on the holotype and the recently collected specimen including photographs of their habitus and copulatory organs.

Material and methods

The Iranian specimen was photographed alive in the field in Iran by Meysam Ghasemi and specimen in alcohol was imaged at the Zoological Museum, University of Turku, Finland, with a Canon EOS 7D camera attached to an Olympus

SZX16 stereomicroscope. The holotype was photographed at the Zoological Survey of India (ZSI) in Kolkata (India) with a Leica EZ4 HD stereomicroscope. Digital images were prepared using CombineZP and Zerene Stacker image stacking software. All measurements are given in millimeters. Lengths of leg segments were measured on the dorsal side. The Iranian specimen was deposited in the Manchester Museum, Manchester University, United Kingdom (MMUE) and holotype is from the ZSI in Kolkata, India.

Abbreviations: ALE – anterior lateral eye, AME – anterior median eye, PLE – posterior lateral eye, PME – posterior median eye

Results

Araneidae Clerck, 1757

Araneinae Clerck, 1757 – Poltyini Simon, 1895

Poltys C. L. Koch, 1843

Poltys nagpurensis Tikader, 1982 (Figs 1–4)

Poltys nagpurensis Tikader 1982: 169, figs 321–325 (♀).

Material. 1♀ (MMUE), IRAN: Hormozgan Province: Mangrove forest, Persian Gulf, 26.83°N, 55.55°E, 07.10.2013 (leg. M. Ghasemi).

Holotype. ♀ (ZSI, N° 4940/18), INDIA: Maharashtra: Nagpur, Kachari Swanga, 21.20°N, 78.65°E, 30.10.1973 (leg. U. A. Gajbe), examined.

Diagnosis. The epigyne of this species is very similar to that of *P. illepidus* C. L. Koch, 1843, the type species of the genus, but the two species can be distinguished by the rounded bulged tip and trilobed shape of the plate of *P. nagpurensis* (Fig. 3) in comparison to more hexangular shape of the plate with a distinct narrow rim in *P. illepidus* (Smith 2006: Figs 46–51). Lateral plates broadly cover copulatory grooves in comparison to narrow one in *P. illepidus* and the base of the fovea has approximately the same width, while in *P. illepidus* is broadest in the middle part, thinner basally and partly covered by median plate at the base.

Description

Iranian specimen (Fig. 1). Collected specimen was badly damaged, therefore colouration and habitus were described on the basis of photos of the live specimen; measurements were taken from dead specimen. Total length 11.0. Prosoma

Alireza ZAMANI, Zoological Museum, Biodiversity Unit, University of Turku, FI-20014, Finland; E-mail: zamani.alireza5@gmail.com

Yuri M. MARUSIK, Institute for Biological Problems of the North RAS, Portovaya Str. 18, Magadan 685000, Russia and Department of Zoology & Entomology, University of the Free State, Bloemfontein 9300, South Africa; E-mail: yurmar@mail.ru

Mahmood SOOFI, Workgroup on Endangered Species, J. F. Blumenbach Institute of Zoology and Anthropology, University of Göttingen, Germany; E-mail: mahmood.soofi@biologie.uni-goettingen.de

Seppo KOPONEN, Zoological Museum, Biodiversity Unit, University of Turku, FI-20014, Finland; E-mail: seppoko@utu.fi

John T. D. CALEB, Centre for DNA Taxonomy, Zoological Survey of India, Prani Vigyan Bhawan, M-Block, New Alipore, Kolkata – 700053, West Bengal, India; E-mail: caleb87woodgate@gmail.com

Anna ŠESTÁKOVÁ, The Western Slovakian Museum, Múzejné nám. 3, 918 09 Trnava, Slovakia; E-mail: asestakova@gmail.com

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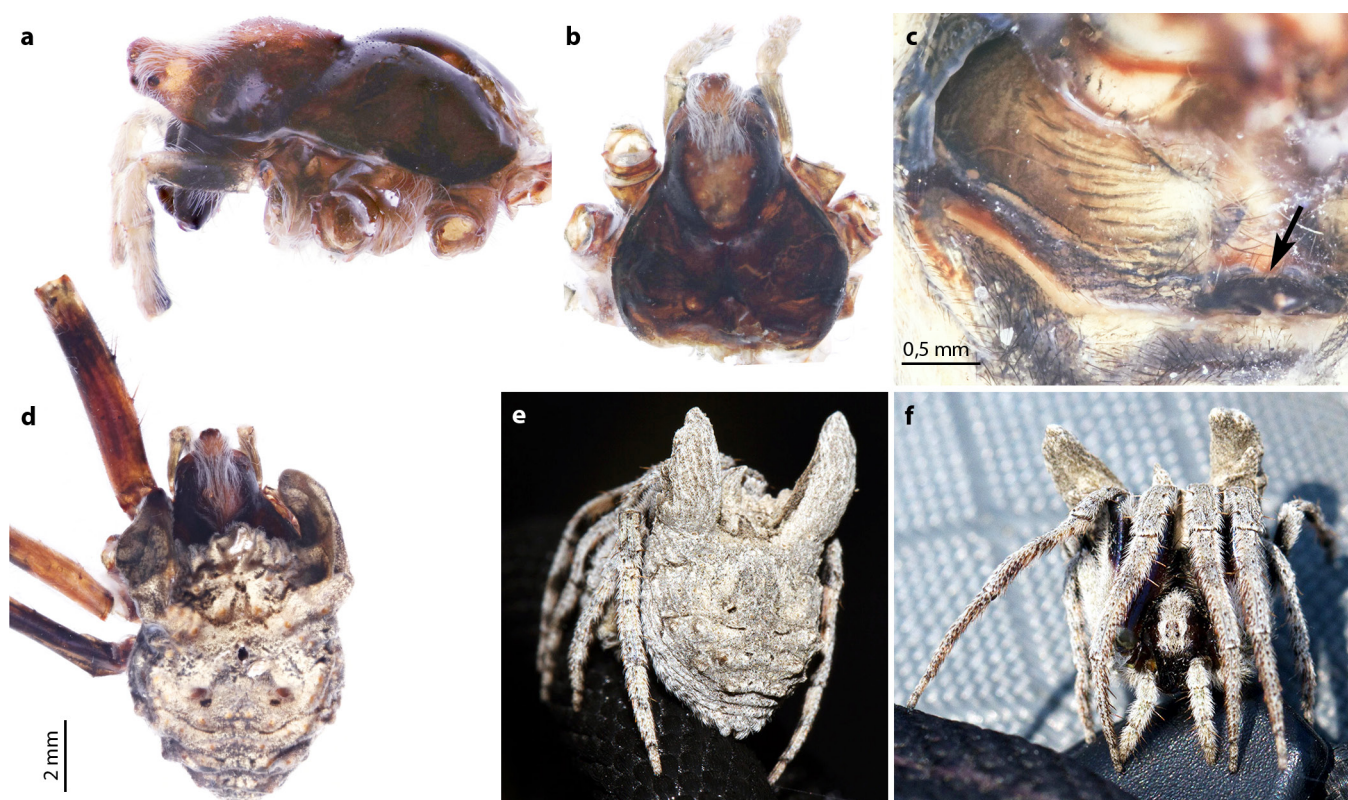


Fig. 1: *Polrys nagpurensis* from Iran. **a–b.** prosoma, lateral and dorsal; **c.** venter of opisthosoma, showing book lungs with transverse wrinkles and black arrow points to epigyne; **d.** habitus of preserved and dried out specimen; **e–f.** photos of the live specimen, posterior and frontal. Photos e–f by M. Ghasemi

5.8 long, 4.75 wide; eye tubercle protuberance 0.58 long, 1.0 wide; cephalic area 3.0 long and 2.4 wide; opisthosoma (shriveled) 7.9 long, 6.07 wide.

Prosoma greyish brown, cephalic part paler and covered with a dorsal set of long whitish hairs. Eye sizes and interdistances: AME 0.12, ALE 0.14, PME 0.15, PLE 0.18, PME–PLE 0.91. Chelicerae with three promarginal and three retromarginal teeth. Leg dark annulated, measurements: femur I 7.1, femur III 4.6, femur IV 5.4 (rest of the leg segments missing). Opisthosoma greyish, anterodorsally with two large horn-shaped protuberances extending over the carapace, and a smaller median protuberance; posteriorly, horizontally-wrinkled without distinct pattern (Fig. 1e). Book lungs covered with transverse wrinkles (Fig. 1c).

Epigyne as in Fig. 3a–d; appears on intact opisthosoma as thin transverse sclerotization (Fig. 1c); epigynal plate with rounded lobe or kind of scape (Sc), wider than long; with thin septum (Se), fovea (Fo) narrow, boomerang-shaped, rounded lateral plates (Lp) separated somewhat less than receptacle diameter; receptacles (Re) partly visible, round with hemispherical posterior sclerotization (Ps).

Holotype (Fig. 2). Female. Total length 12.47. Prosoma 4.25 wide (length not measurable because of the opisthosoma covering the posterior margin of prosoma); eye tubercle protuberance 0.41 long, 0.95 wide; cephalic area 2.69 long, 2.13 wide; opisthosoma 10.58 long, 9.77 wide. Measurements differ slightly in comparison to the original description by Tikader (1982). This is probably caused by storing of the specimen in alcohol, by different position during measurement due to rounded opisthosoma and also by different methods of measuring.

Prosoma dark brown, cephalic part paler and covered with whitish hairs. Eye sizes and interdistances: AME 0.17, ALE 0.14, PME 0.17, PLE 0.14, PME–PLE 0.59. Sternum unicolour orange-brown. Chelicerae with four promarginal (second one very small) and four smaller retromarginal teeth (Fig. 2c–d). Legs dark annulated. Opisthosoma yellowish with irregular darker pattern and many small tubercles, anterodorsally with two larger humps; ventrally whitish with dark brown epigastrium.

Epigyne as in Fig. 3e–h; trilobed, rounded and bulged on the tip; lateral plates broadly covered fovea and copulatory grooves, visible fovea narrow, median plate is reduced to thin septum; receptacles partly visible.

Distribution. This species is currently known from Hormozgan Province in southern Iran (present paper), and western (Tikader 1982, Warghat et al. 2010, Rithe 2012, Keswani 2015 – misidentified as *P. illepidus*; Shirbhate & Shirbhate 2017) and central India (Rajoria 2015 – misidentified as *P. illepidus*). Here we provide the first recorded occurrence of the genus *Polrys* in Iran, and the Middle East (Zamani et al. 2018). It is also the westernmost record of this genus in the entire Asia (Fig. 4). In the case that the species has not been accidentally introduced to Iran, its presence might also be expected in mangroves in Pakistan.

Habitat. The single specimen from Iran was collected in mangroves. In India it was found in different types of habitats. Unfortunately, many authors did not specify the locality, and such information is missing about the type locality as well (Tikader 1982; it was omitted also on the original label). Warghat et al. (2010) collected this species in a forest near an agricultural field, while Shirbhate & Shirbhate (2017) found

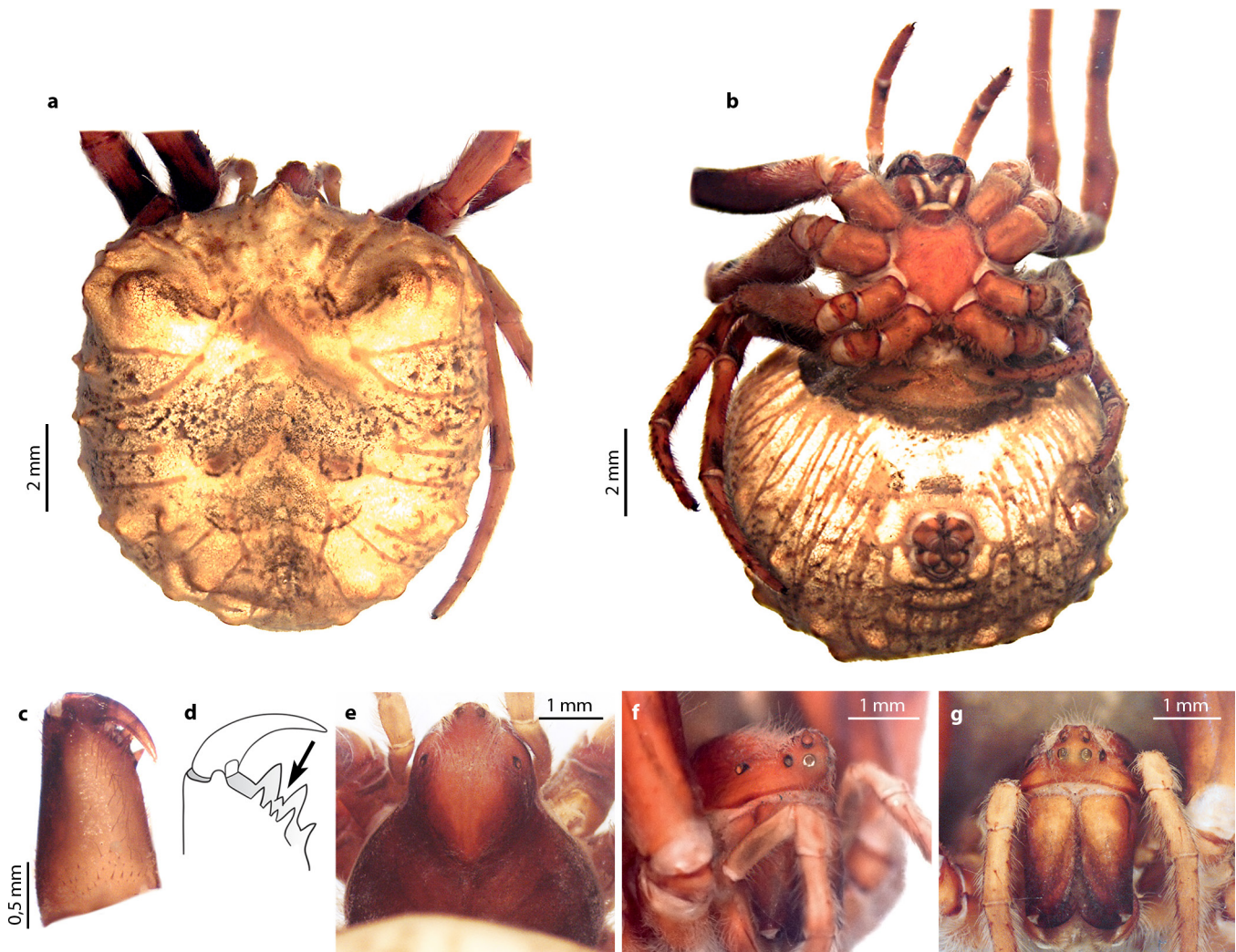


Fig. 2: Holotype of *Poltys nagpurensis*. **a–b.** habitus, dorsal and ventral; **c–d.** chelicerae, internal, black arrow shows small promarginal tooth; **e–g.** prosoma, dorsal, lateral and frontal

it on tall trees of southern tropical dry deciduous forests. Misidentified specimens have been recorded from orange fields (Keswani 2015) and in comparatively dry areas (Rajoria 2015).

Discussion

The determination of *Poltys* species using morphological characters only seems to be problematic due to cryptic taxa, intraspecific morphological variation, clinal variation and polymorphism (Smith 2006). Additionally, most of the described species still have an undescribed sex (WSC 2018) and yet, for accurate identification, males are necessary.

Based on present knowledge, the *Poltys* specimen from Iran is conspecific with *P. nagpurensis*. This identification was also confirmed by H. Smith (pers. comm.). However, comparison of the habitus of the Iranian specimen and the holotype of *P. nagpurensis* may indicate that they could belong to two different species. The female from Iran has considerably larger opisthosomal humps, a more slender carapace and a longer eye tubercle. However, according to Smith (pers. comm.) opisthosomal humps, shape of the carapace and eye position are so variable that they are not reliable characters for diagnosis. On the other hand, the epigyne is almost identical to that of the holotype of *P. nagpurensis*. Some differences are probably caused by intraspecific variability and also by the angle

of observation. The last situation is demonstrated on the type specimen (Fig. 3g–h). The black arrows point to the different shape of the epigynal plate, which was caused by the slightly different dorso-ventral position of the epigyne.

The most similar species, *P. illepidus*, has a rather wide distribution, known from India to Japan and south to Australia (WSC 2018). However, Smith (2006) doubted the conspecificity of Australian and Japanese populations, as well as populations from Sri Lanka and India. This statement is also supported by comparing other figures of copulatory organs from Japan by Tanikawa (2007: fig. 758) and from India by Keswani (2015) and Rajoria (2015). Considering the epigyne, *P. nagpurensis* from India seems to be misidentified as *P. illepidus*, but the species affinity of Japanese *P. illepidus* is unknown and requires further consideration.

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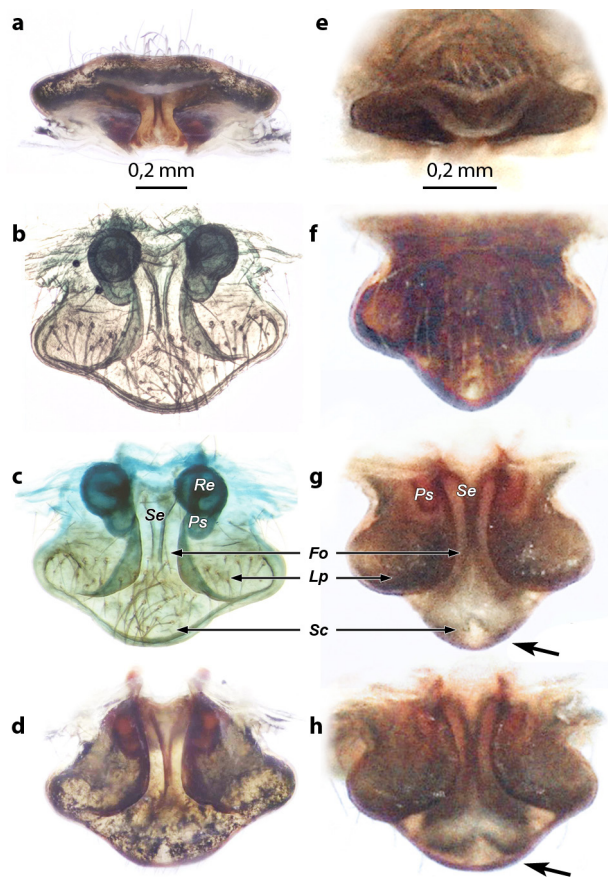


Fig. 3: Comparison of the epigyne of *Pollys nagpurensis* from Iran and the holotype. The black arrows show different shapes of the plates caused by different dorso-ventral position of the epigyne. **a–d.** specimen from Iran, epigyne macerated (**b–c**) and non-macerated (**a, d**); **e–h.** holotype; **a, e.** posterior; **b, f.** dorsal; **c, d, g, h.** ventral. Abbreviations: Fo – fovea, Lp – lateral plates, Re – receptacles, Ps – posterior sclerotization, Sc – scape, Se – septum

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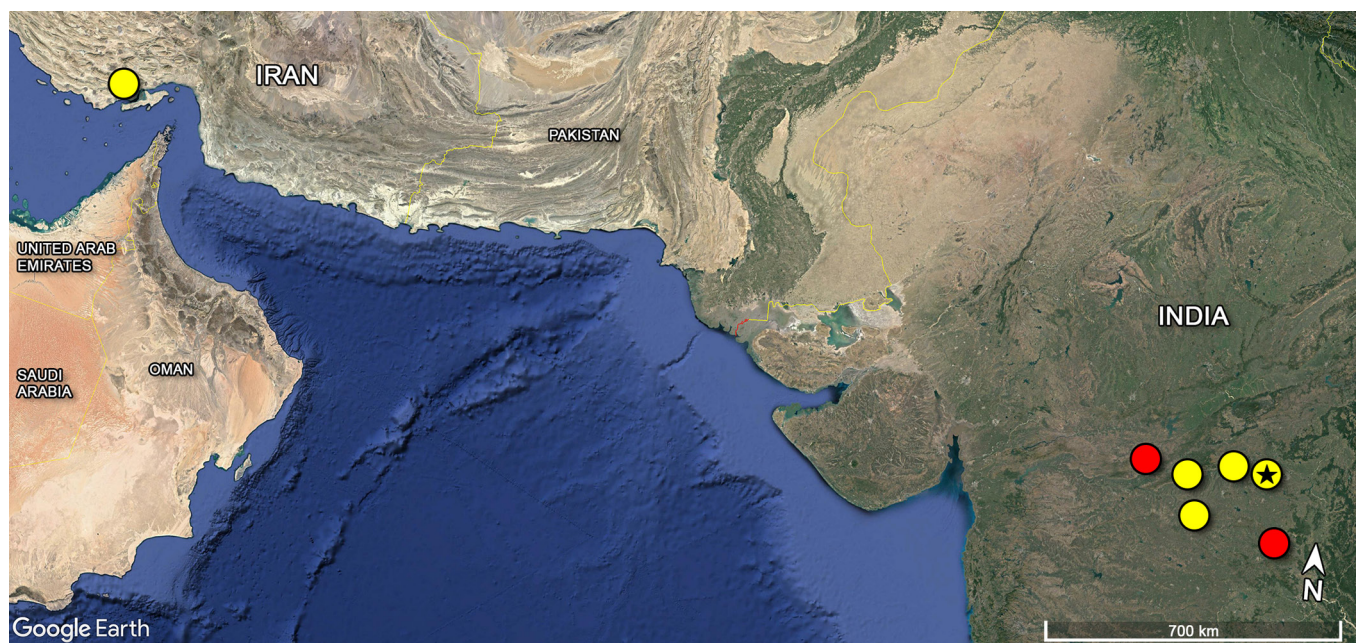


Fig. 4: Published records of *Pollys nagpurensis* from India and new record from Iran. Yellow circles – accepted records from India and new record from Iran; yellow circle with star – type locality; red circle – misidentified as *P. illepidus*